PRO G.A.P.

Programmable Guitar Preamp

INSTRUCTION MANUAL

Featuring 5 Factory Presets Designed by Steve Lukather and 5 Factory Presets Designed by Allan Holdsworth.

Covered by U.S. Patents #4647876, and 4696044. Other patents pending. Foreign patents pending.

ROCKTRON CORPORATION

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INTRODUCTION

The Rocktron PROGAP is a professional MIDI programmable guitar preamp with features unsurpassed by any guitar preamp. The PROGAP can produce an infinite array of clean and distorted sounds into two outputs, one full range for direct use with mixing consoles or sound systems, and a second output designed to drive a power amp and speaker cabinet.

The PROGAP also features a programmable HUSH (Rocktron's single ended noise reduction), as well as Rocktron's AGX (Automatic Gain Expansion) circuitry, which provides a noise free performance.

This operating manual will introduce you to the PROGAP and its various functions. After reading this manual carefully, keep it for future reference.

PRECAUTIONS

NOTE: IT IS VERY IMPORTANT THAT YOU READ THIS SECTION TO PROVIDE YEARS OF TROUBLE FREE USE. THIS UNIT REQUIRES CAREFUL HANDLING.

All warnings on this equipment and in the operating instructions should be adhered to and all operating instructions should be followed.

Do not use this equipment near water. Care should be taken so that objects do not fall and liquids are not spilled into the unit through any openings.

DO NOT ATTEMPT TO SERVICE THIS EQUIPMENT. THIS EQUIPMENT SHOULD BE SERVICED BY QUALIFIED SERVICE PERSONNEL ONLY. DO NOT REMOVE THE COVER FROM THIS EQUIPMENT AT ANY TIME. DO NOT MAKE ANY INTERNAL ADJUSTMENTS OR ADDITIONS TO THIS EQUIPMENT AT ANY TIME. DO NOT TAMPER WITH INTERNAL ELECTRONIC COMPONENTS AT ANY TIME. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY VOID WARRANTY SERVICE TO THIS EQUIPMENT, AS WELL AS CAUSING SHOCK HAZARD.

VOLTAGE RATINGS

Make sure your AC outlet satisfies the voltage rating to avoid damage to this unit. The back of this unit will be rated one of the following:

JAPAN:	100 V 50/60Hz
US/CANADIAN:	115 V 50/60Hz
GERMANY/FRANCE/FINLAND:	220-240 V 50/60Hz

OPERATING TEMPERATURE

Do not expose this unit to excessive heat. This unit is designed to operate between 32 F and 104 F (0 C and 40 C). This unit may not function properly under extreme temperatures.

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Before using your PROGAP, please read and follow these operating instructions completely. The following QUICK SET-UP instructions are by no means complete, but should get you started. Please take the time to go back and thoroughly read the entire manual at your soonest convenience.

QUICK SET-UP

Set Up

Step 1: Plug your PROGAP into an AC outlet (117VAC U.S.A.)
Step 2: Engage power switch IN. The front panel display will begin to scroll "ROCKTRON PROGAP".
Step 3: Connect guitar to front panel INPUT jack. Connect OUTPUT of PROGAP, using either FULL RANGE or AMPLIFIER, to appropriate source.
Step 4: Press RECALL button. The PROGAP automatically recalls PRESET 20 after power-up.
NOTE: Presets 1-20 are factory installed presets and can not be written over.

To Change Preset Programs

Step 1: Turn SELECT PARAMETER control to preset position. (Full c.c.w.)
Step 2: Turn ADJUST control until desired preset number is displayed.
Step 3: Press RECALL button. The new preset title will be displayed.

To Change Parameters

Step 1: Turn SELECT PARAMETER control to the position of the desired parameter to be changed. The PROGAP will then display the current setting of the parameter.
Step 2: Turn ADJUST control until the desired setting is accomplished (NOTE: It is not necessary to store each individual parameter. You may store the entire program once it is completed.

To Store New Presets

After altering a preset to the desired sound, or after creating a totally original sound, the PROGAP allows you to store this program into preset numbers 21-128. (Presets 1-20 are factory presets and can not be modified.) NOTE: To store a new preset, the SELECT PARAMETER control must be in one of the parameters other than PRESET or MIDI. The PROGAP will not store a program when left in either of these two positions.
Step 1: Push the EDIT/STORE button. "ENTER PRESET" will scroll across the display.
Step 2: Turn the ADJUST control to the desired preset number you wish to store your new program into.
Step 3: Push the EDIT/STORE button. "STORED" should flash across the display, verifying that your program is stored into memory.

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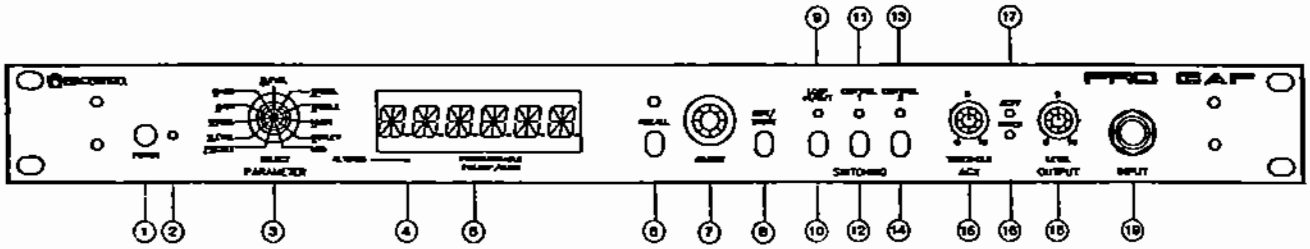
FRONT PANEL DESCRIPTION



(1). . .**POWER SWITCH**

(2). . .**POWER ON/OFF LED:**

When lit, this LED indicates that the unit is in operation.

(3). . .**PARAMETER SELECT CONTROL:** 11 positions (Preset function, 9 adjustable parameters, and MIDI options) full counter clockwise to full clockwise

Preset Function

PRESET: preset number and title, 128 total presets available (20 set factory presets, 108 fully adjustable presets)

Adjustable Parameters (with 64 incremented positions each)

1LEVEL: predistortion EQ level, -15dB to +15dB
1FREQ: predistortion EQ frequency, 450Hz to 3.25KHz
GAIN: gain level, CLEAN (0dB), 0.5dB to 70dB
BASS: bass level, -12dB to +12dB
2LEVEL: postdistortion EQ level, -12dB to +12dB
2FREQ: postdistortion EQ frequency, 600Hz to 8KHz
TREBLE: treble level, -15dB to +15dB
HUSH: HUSH threshold level, -70dB to 0dB
OUTLEV: output level, -70dB to +10dB
(OUTLEV works in conjunction with the front panel Output Level control)

MIDI Options

MIDI: mapping status, program mapping, controller mapping, MIDI channel number, and inc/dec footswitch type.

(4). . .**ALTERED INDICATOR:**

The ALTERED indicator is the first decimal point of the first character of the display. When this decimal point is lit, it indicates that the ADJUST control has been turned to a different value (ALTERED value), than the value which is stored in that preset (STORED value).

(5). . .**DISPLAY PANEL:**

The Display panel consists of six alphanumeric characters of 14 segments each. On initial power up, the LED display will show a brief (about 1 second) LED segment test. All LED segments are lit at this time, indicating that all segments are in working order.

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(6). . .**RECALL BUTTON:** function dependent on the SELECT PARAMETER control

When the SELECT PARAMETER control is in PRESET, the RECALL button is used to recall the displayed preset number.

When the SELECT PARAMETER control is in one of the nine adjustable parameters, (1Level, 1Freq, Gain, etc.), the RECALL button is used as a toggle between the STORED value and the ALTERED value.

When the SELECT PARAMETER control is in MIDI, the MIDI options can be stepped through by using the RECALL button. The options are: mapping status, program mapping, controller mapping, MIDI channel number, and inc/dec footswitch type.

(7). . .**ADJUST CONTROL:** function dependent on the SELECT PARAMETER control

When the SELECT PARAMETER control is in PRESET, the ADJUST control can be used to select a preset number and to edit preset titles.

When the SELECT PARAMETER control is in one of the nine adjustable parameters, the ADJUST control allows the user to select the different values available for a particular adjustable parameter.

When the SELECT PARAMETER control is in MIDI, the ADJUST control selects the various parameters of the different MIDI options.

(8). . .**EDIT/STORE BUTTON:** function dependent on the SELECT PARAMETER control

When the SELECT PARAMETER control is in PRESET, the EDIT/STORE button is used to initiate the title edit function. All 128 preset titles can be edited to whatever the user prefers. (For the 20 set factory presets, the title is the only thing that can be changed.)

When the SELECT PARAMETER control is in one of the nine adjustable parameters, the EDIT/STORE button is used to copy a preset into another preset. It is also used AFTER changing a parameter value when the CHANGED value is to be entered into the memory in place of the previous value.

When the SELECT PARAMETER control is in MIDI, use the EDIT/STORE button after entering any MIDI information that is to be STORED (saved) in the memory.

(9). . .**LOOP IN/OUT LED:**

This LED indicates whether the Loop is switched in or out.

(10). . .**LOOP IN/OUT BUTTON:**

This button is used to manually switch the Loop in or out. The Loop LED will indicate the status of the Loop. The Loop is preset to OFF at the factory. This means that when a preset is called up, the Loop will be OFF. While in a preset, the Loop can be manually switched in or out as needed, as well as switched in or out via a MIDI control change. (Refer to the OPERATIONS sections concerning MIDI Control Changes for more information.) However, unless it is switched to the IN position and STORED in that preset by the user, it will continue to be set to OFF each time the preset is recalled. (For the factory presets 1-20, the Loop can be altered while in one of these presets, but it can NOT be stored on.)

With no device inserted into the Loop, the Loop button can be used as a MUTE button.

(11). . .**CONTROL 1 LED:**

This LED indicates the status of Control 1.

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(12). . .**CONTROL 1 BUTTON:**

This button allows the user to manually turn Control 1 on or off. The Control 1 LED will indicate the status of Control 1. Control 1 is preset to OFF in the factory. This means that when a preset is called up, Control 1 will be OFF. While in a preset, Control 1 can be switched in or out as needed, as well as switched in or out via a MIDI control change. (Refer to the OPERATIONS section concerning MIDI Control Changes for more information.) However, unless Control 1 is manually switched to the IN position and STORED in that preset by the user, it will continue to be set to OFF each time the preset is recalled. (For factory presets 1-20, Control 1 can be altered while in one of these presets, but it can NOT be stored on. Refer to the OPERATIONS section concerning Control Functions.)

(13). . .**CONTROL 2 LED:**

This LED indicates the status of Control 2.

(14). . .**CONTROL 2 BUTTON:**

This button allows the user to manually turn Control 2 on or off. The Control 2 LED will indicate the status of Control 2. Control 2 is preset to OFF at the factory. This means that when a preset is called up, Control 2 will be OFF. While in a preset, Control 2 can be manually switched in or out as needed, as well as switched in or out via a MIDI control change. (Refer to the OPERATIONS section concerning MIDI Control Changes for more information.) However, unless Control 2 is switched to the IN position and STORED in that preset by the user, it will continue to be set to OFF each time the preset is recalled. (For factory presets 1-20, Control 2 can be altered while in one of these presets, but it can NOT be stored on. Refer to the OPERATIONS section concerning Control Functions.)

(15). . .**AGX THRESHOLD CONTROL:** Variable

The AGX Threshold control sets a point where the automatic gain expander can work at maximum performance. It is adjustable for input signals covering a wide range.

(16). . .**THRESHOLD LED:**

The Threshold LED indicates that the signal is below the threshold point of the AGX circuit and full expansion is taking place.

(17). . .**ACTIVE LED:**

The Active LED indicates that the AGX circuit is activated and is reducing the gain of the pre-amplifier stage. When the LED is not lit, full gain is resumed.

(18). . .**OUTPUT LEVEL CONTROL:** Variable

(The Output Level control works in conjunction with the OUTLEV parameter of the SELECT PARAMETER control)

The front panel Output Level control adjusts the final level of the signal at the unit's output. (The programmable output level in the SELECT PARAMETERS will set the relative output level of the presets.) The front panel output will work in conjunction with the programmable output level. Full counter clockwise will give ZERO output, full clockwise will give the full relative output level set by the programmable output.

(19). . .**INPUT JACK:** standard 1/4" mono jack

This standard unbalanced mono 1/4" jack is used to provide input to the unit. It is front panel mounted for easy access. Read the SPECIFICATIONS section to determine the maximum input level. Failure to do so will overdrive the unit and may damage the internal circuitry.

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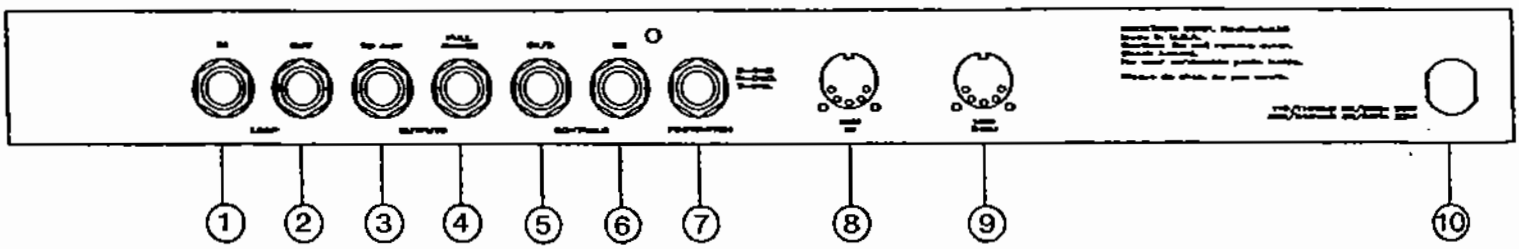
REAR PANEL DESCRIPTION



(1). . .**LOOP INPUT JACK:** standard 1/4" mono jack

This standard mono 1/4" jack accepts the output of any external effect device to insert into the Loop.

(2). . .**LOOP OUTPUT JACK:** standard 1/4" mono jack

This standard 1/4" mono jack provides mono output, which may be used as an input for any external effect or signal processor of multiple daisy-chained combinations. Read CONNECTIONS for more information.

(3). . .**AMPLIFIER OUTPUT JACK:** standard 1/4" mono jack

This standard 1/4" mono jack provides an output for the unit. It is set up for use with a typical guitar amplifier and speaker cabinet.

(4). . .**FULL RANGE OUTPUT JACK:** standard 1/4" mono jack

This standard 1/4" mono jack provides an output for the unit. It is set up for use with a full range system.

(5). . .**CONTROL 1 / 2 JACK:** standard 1/4" stereo jack

The Control jacks are directly connected to relay contacts. This allows these jacks to be used to control outboard devices which have footswitchable functions. Control 1 / 2 jack is set up to either accept a stereo or mono plug. When using a mono plug, this jack will provide Control 1. When using a stereo plug, this jack will provide both Control 1 and Control 2, as long as there is nothing plugged into the Control 2 jack. If there is something plugged into the Control 2 jack, it will take priority and the Control 1 / 2 jack will once again only provide Control 1. The Control jacks are insulated from the rest of the unit to prevent the formation of ground loops.

(6). . .**CONTROL 2 JACK:** standard 1/4" mono jack

Control 2 jack is set up to accept a mono plug. When using a mono plug, this jack will provide Control 2. If there is nothing plugged into this jack, the Control 1/ 2 jack can be set up to provide both Control 1 and Control 2. The Control jacks are insulated from the rest of the unit to prevent the formation of ground loops.

(7). . .**FOOTSWITCH JACK:** standard 1/4" stereo jack

This standard 1/4" stereo jack accepts either a latch or momentary contact type footswitch. To configure this jack for the type of footswitch you wish to use, read the OPERATION section concerning INC/DEC FOOTSWITCH TYPE (MIDI option selection). Use of a dual footswitch (stereo plug) will give the ability to increment or decrement through the presets, while using a single switch (mono plug) will only allow increments. Sleeve = GND Ring = DEC Tip = INC

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(8). . .**MIDI IN CONNECTOR:** standard MIDI 5 pin din connector

The MIDI In Connector must be connected to the MIDI Out Connector of the transmitting MIDI device via a standard MIDI cable, or to the MIDI THRU connector of the preceeding device if the PROGAP is within a chain of MIDI devices.

(9). . .**MIDI THRU JACK:** standard MIDI 5 pin din connector

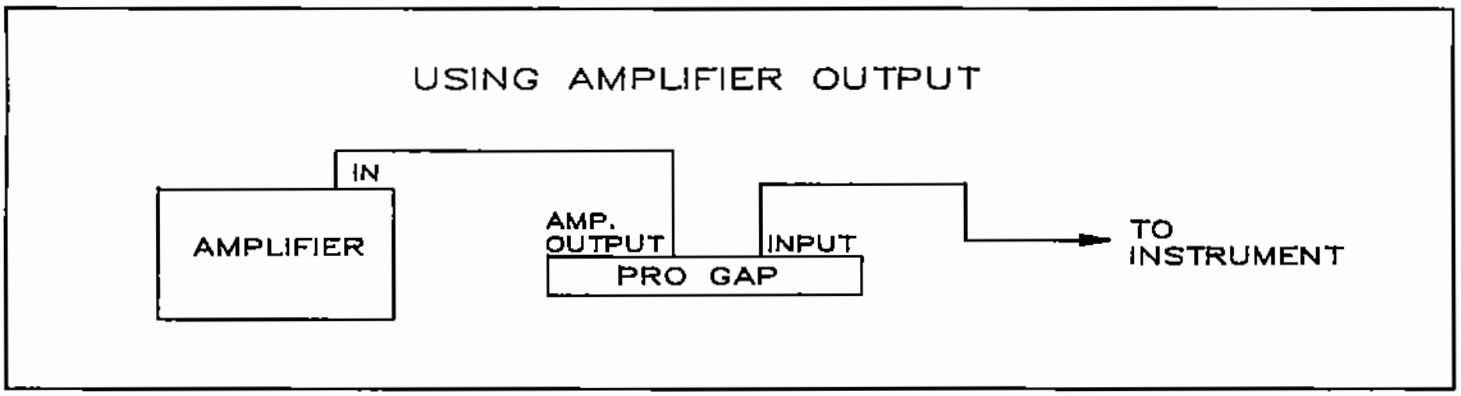
The MIDI Thru Connector can be connected to the MIDI In Connector of another MIDI device via a standard MIDI cable. There are limitations to the number of devices that can be chained (series connected) in this fashion. For further information, read the MIDI FORMAT section concerning MIDI In and MIDI Thru.

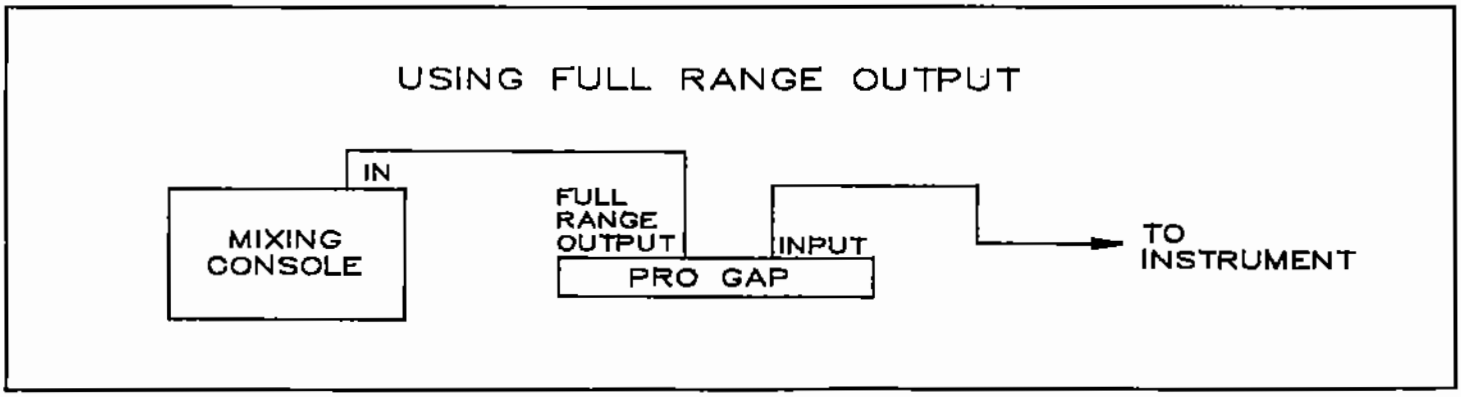
(10). . .**AC POWER CORD:**

NOTE: VERIFY YOUR AC WALL OUTLET'S VOLTAGE RATING AGREES WITH THAT OF THE UNIT.

This cord is provided to connect the unit to your AC wall outlet. DO NOT RUN THIS UNIT FROM CAR BATTERIES OR ANY OTHER EXTERNAL POWER SOURCE.

CONNECTIONS





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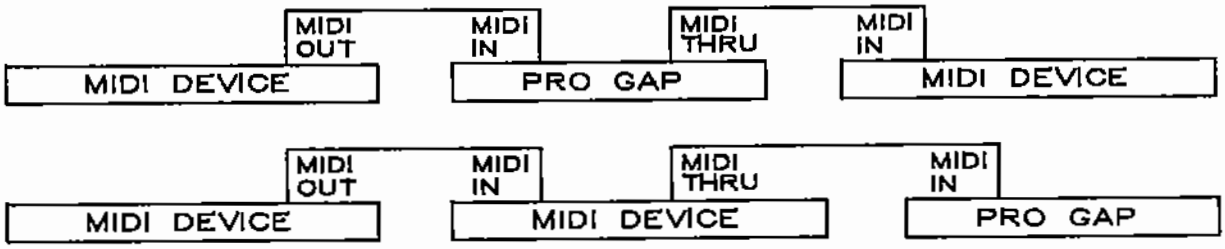
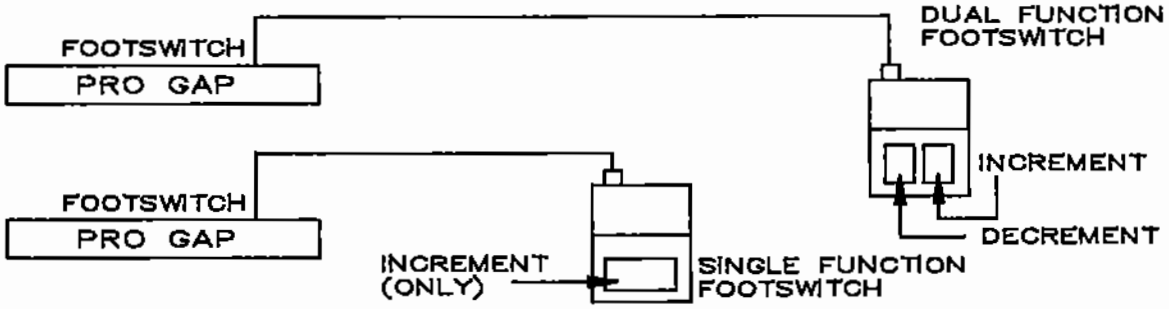
USING MIDI



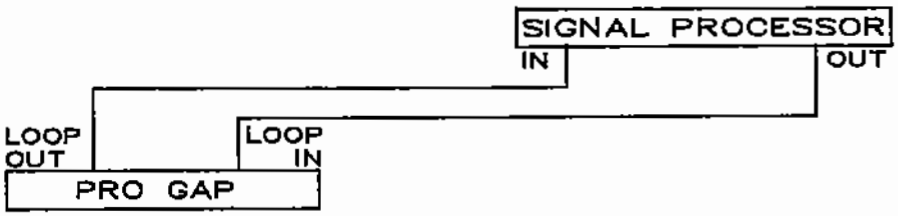
USING A CHAIN OF MIDI DEVICES



USING FOOTSWITCH JACK



USING THE AUDIO LOOP



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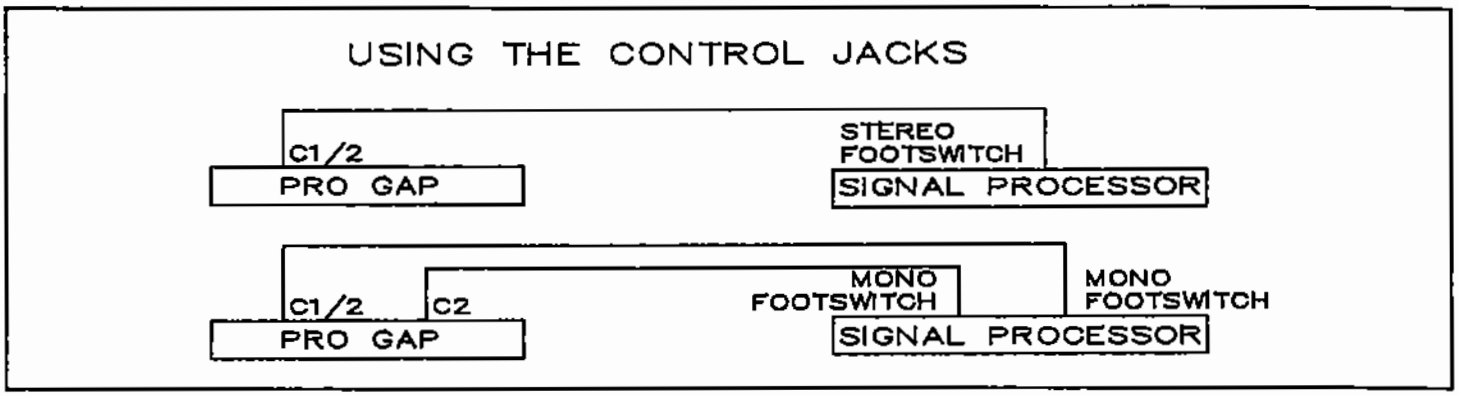

BASIC FORMAT

PREDISTORTION EQ SECTION: 1LEVEL 1FREQ

The PROGAP's basic format is as follows. The predistortion EQ section selects the tone for the instrument prior to preamp stage. Considerable tone shaping variations can be achieved by using the 1LEVEL of the SELECT PARAMETER control. This is the mid-frequency cut/boost control, adjustable from -15dB of cut to +15dB of boost. Set this parameter in conjunction with the frequency that you wish the cut or the boost to be centered at. This can be obtained by setting the 1FREQ parameter of the SELECT PARAMETER control. The mid frequency control is adjustable from 450Hz up to 3.25KHz.

DISTORTION SECTION: GAIN AGX

The next stage is the distortion section. This section includes the GAIN parameter of the SELECT PARAMETER control as well as the AGX (Automatic Gain Expansion) system on the front panel. The GAIN parameter is adjustable from CLEAN (0dB of gain) to 70dB of gain. (The first increment of gain after CLEAN is 0.5dB of gain.) When switching from the CLEAN setting to any of the gain settings, a high frequency presence circuit is automatically inserted pre-distortion. This circuit accentuates the top end component of the gain tones, but can also be used to achieve a bright clean tone by using a very low gain setting such as 0.5dB.

The AGX system solves the long standing problem encountered by guitar players when using high gain distortion. No more noise! No more amplication of extraneous signals such as AC line hum, light interferance, RF pick-up, and uncontrolled feedback. The guitar player no longer has to sacrifice high gain or volume to achieve a quiet signal. The AGX circuit expands the gain of the amplication circuit only when required based on the input level. When no signal is present, the AGX circuit expands down the amplication level to a point where hum and noise are eliminated. Playing softly allows a clean guitar sound without any noise or distortion that is typically encountered with high gain amplication. Playing with more intensity increases the amplication factor, thus creating more distortion and sustain. The AGX circuit will accurately track the dynamics of the guitar while providing the solution to the noise problem.

SETTING THE AGX:

The AGX circuit is simple to use. Start by turning the AGX Threshold control full counter clockwise. Now, create the sound you want by setting the adjustable parameters available in the SELECT PARAMETER control, and set the volume you wish to play at. With the volume control of your guitar up all the way, mute the strings with your hand so that no signal is present. Simply turn the AGX Threshold control clockwise just past the point where both the Active and Threshold LEDs light. All signs of gain and related noise should disappear. The AGX circuit is now set. (Note: some experimenting with the threshold control may be needed to achieve the desired effect.) The effect of the AGX (the gain expansion) is

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proportional to the amount of gain being used. When the gain is decreased, the AGX is needed less and therefore has less of an effect. However, as the gain increases, the AGX is needed more and therefore it will have a greater effect. The AGX control was not made programmable because the optimum setting may depend on the environment the guitar-preamp system is being used in. It would not be desirable to have to re-program the AGX settings in all the presets each time you performed in a different venue. Since the AGX circuit senses the input of the PROGAP, only one setting is needed for any one guitar in a particular noise setting. As you set up your equipment in a particular environment, the AGX setting needed will not need adjusting until you either change guitars, or change venues.

POSTDISTORTION EQ SECTION: BASS 2LEVEL 2FREQ TREBLE

The postdistortion EQ section allows the bass and treble content to be varied individually, as well as providing an adjustable frequency that can be separately cut or boost. The BASS parameter of the SELECT PARAMETER control allows you to select from -12dB of bass cut to +12dB of bass boost. The 2LEVEL parameter sets -12dB of cut to +12dB of boost for the selectable frequency, which is set by the 2FREQ parameter. The postdistortion frequency is adjustable between 600Hz to 8KHz. The TREBLE parameter allows you to set from -15dB of treble cut to +15dB of treble boost.

HUSH SECTION: HUSH

The HUSH parameter of the SELECT PARAMETER control provides additional noise reduction for optimal noise free operation. The HUSH can be set between -70dB to 0dB. The HUSH is Rocktron's own patented single-ended noise reduction system. The HUSH circuit is comprised of two parts: the expander and the dynamically controlled low pass filter.

The expander operates like an electronic volume control. The design utilizes a voltage controlled amplifier (VCA) circuit which can control the gain between the input and output from unity to 30, 40, or even 50dB of gain reduction. When the input signal is above the user pre-set threshold point, the VCA circuit is at unity gain. This means that the amplitude of the output signal will be equal to the input signal. As the input signal amplitude drops below the user preset threshold point, downward expansion begins. At this point, the VCA operates like an electronic volume control and gradually begins to decrease the output signal level relative to the input signal. For example, if the input signal were to drop below the threshold point by 10dB, the output would drop approximately 12dB. As the input signal drops further below the threshold point, downward expansion increases exponentially. For example, if the input signal dropped 20dB below the threshold point, the output level would drop by approximately 30dB. A drop in the input level by 30dB would cause the output to drop by approximately 60dB, i.e. 30dB of gain reduction. In the absence of any input signal, the expander circuit will reduce the gain so that the noise floor becomes inaudible. (Fig. 1)

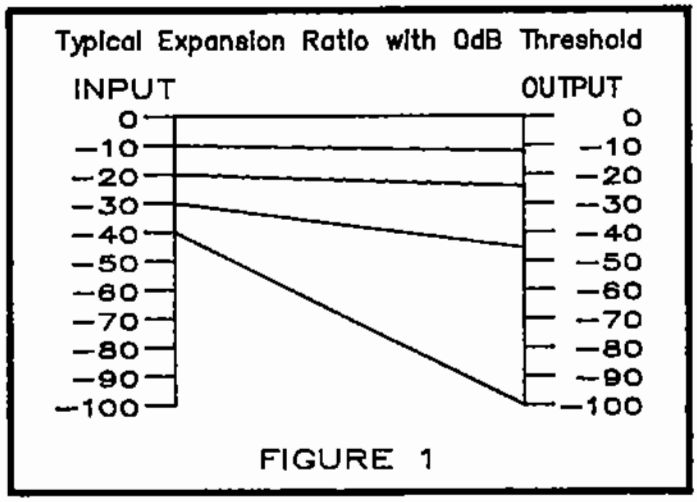

FIGURE 1

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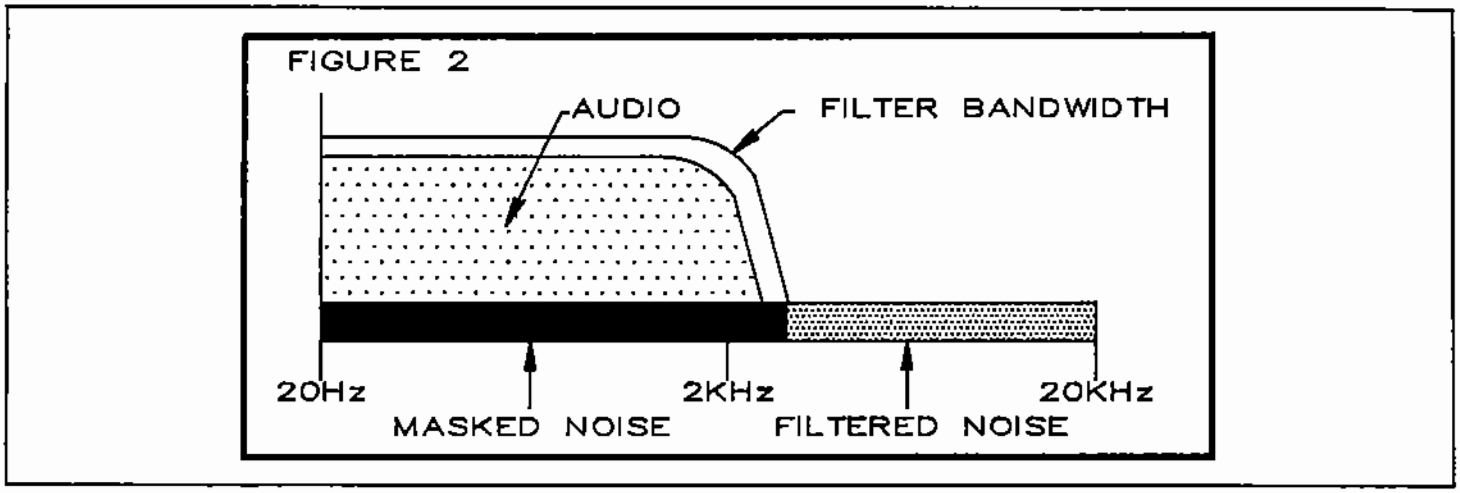
The dynamically controlled low pass filter operates as follows. In the absence of any audio signal, the dynamic filter will close down to the factory preset cut-off point of 800Hz. This means the filter is only allowing frequencies of 800Hz and below to pass through. If an input signal had a bandwidth of from 20Hz to 1KHz, the filter would open far enough to pass up to the 1KHz frequency and its harmonics, while reducing any noise present from approximately 2KHz to 20KHz. If a broad band signal, with frequency components up to 20KHz appears at the input, the dynamic filter would open to its full extreme allowing the bandwidth to open all the way to 40KHz. In simple terms, what this means is that if a signal is present at the input which is primarily bass components, the dynamic filter will reduce any mid or high band noise. However, if the input signal has high frequency components present, the dynamic filter will open to its full extreme to pass the signal and eliminate the possibility of a loss of high end frequency response. (Fig. 2)



These two processes of downward expansion and dynamic filtering work in unison to produce the highly proficient HUSH noise reduction system.

SETTING THE HUSH

Typically, the HUSH should be set between -50dB and -60dB when using relatively clean tones. For distortion tones, set the HUSH between -50dB and -20dB. The extreme end settings should only be used in very extreme situations. (ie.: When using very noisy distortion programs, set the HUSH threshold above -20dB. When using very clean tones, set the HUSH threshold below -60dB.

OUTPUT SECTION: QUTLEV OUTPUT LEVEL CONTROL

The PROGAP features two output level controls. The QUTLEV parameter in the SELECT PARAMETER control is programmable and adjustable between -70dB and +10dB. The front panel Output Level control works in conjunction with the programmable output level allowing for fast volume adjustment. Both output controls determine the output signal from the PROGAP preamplifier.

Set the programmable QUTLEV parameter to the relative output level you wish to use. The front panel Output Level control is the "master" control. Full counter clockwise will give ZERO output, and full clockwise will give the relative output level that was set by the programmable QUTLEV parameter.

MIDI FORMAT

MIDI stands for Musical Instrument Digital Interface and was established as a specification which would make it possible to exchange information (program changes, expression control, etc.) between different musical equipment. MIDI makes it possible for a user of MIDI compatible equipment to expand a music system and to change system configurations to meet changing requirements. Some MIDI devices have the ability to transmit MIDI, some to receive MIDI and others can both transmit and receive MIDI.

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A MIDI transmitter originates messages in MIDI format and transmits them. A MIDI receiver accepts messages in MIDI format and executes MIDI commands.

The Rocktron PROGAP is a MIDI receiver. In order for it to receive MIDI information and execute MIDI commands, it is necessary to use the PROGAP in conjunction with a MIDI transmitter device. The PROGAP is compatible with MIDI transmitters that send MIDI as well as SYSEX (System Exclusive), and MIDI Time Code (MTC). It will respond only to MIDI program changes, and MIDI controller changes. It will not be affected by other MIDI commands or information.

MIDI IN AND MIDI THRU

MIDI information is received through the MIDI In Jack. The MIDI signal received from the MIDI In Jack can be passed on to other MIDI devices by using the MIDI Thru Jack. MIDI receivers can only take the MIDI information and execute the commands, they can not send their own commands out either back to the device transmitting MIDI or to other devices that receive MIDI. The MIDI Thru Jack simply sends the original MIDI input signal that it received from the MIDI In Jack, however there is a limit to the number of devices which can be chained (series connected) in this fashion. With more than three devices, a slight distortion of the MIDI signal can occur, which can cause an error in MIDI signal transmission. Should this problem arise, a MIDI box can be used, which connects directly to the MIDI device which transmits MIDI information, and has multiple connectors for the multiple devices receiving MIDI. MIDI cables should not exceed 50 feet (15 meters) in length.

FACTORY SET UP

Your Rocktron PROGAP was set up at the factory in the following set-up. Unless otherwise indicated, these settings are fully changeable, and programmable by the user.

PRESETS

On initial power up, your PROGAP will ALWAYS come up in preset 20.

Presets 1-20 are factory set, and will NOT allow any changes to be made to the parameter values, or the status of the Loop and the Control functions. The titles are changeable. For a list of the parameter values, see the Factory Preset Value Chart in the SPECIFICATIONS section. Upon receiving your PROGAP, the factory presets 1-20 are repeated through the remaining memory locations (presets 21-128). This allows the user to select and modify a program with sound characteristics closest to the user's preference.

LOOP AND CONTROL FUNCTIONS

The Loop and the two Control functions are set to OFF in all presets.

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MIDI OPTIONS

Mapping Status is set to OFF.
Program Mapping is set to a one to one correspondence. (1=1, 2=2, 24=24, etc.)
Controller Mapping is set as follows: (usable mapping from 0-120, and OFF)

0=1LEVEL
1=1FREQ
2=GAIN
3=BASS
4=2LEVEL
5=2FREQ
6=TREBLE
7=HUSH
8=OUTLEV
9=LOOP
10=C1 (Control 1)
11=C2 (Control 2)

MIDI Channel Number is set to OMNI (which will receive on ALL channels).
Inc/Dec Footswitch Type is set to LATCH type.

These are the settings your PROGAP will be set to upon receiving it from the factory. The PROGAP will otherwise be set (upon subsequent power up) to the programmable setting changes that the user has made.

OPERATION

Power Up

When the PROGAP is initially powered on, the LED display will show a brief (about 1 second) LED segment test. All LED segments are lit briefly indicating that all segments are working. The PROGAP then automatically recalls preset 20. The message "ROCKTRON PROGAP" will scroll (and continue to scroll) until the SELECT PARAMETER or ADJUST controls are turned, or the RECALL or EDIT/STORE buttons are pressed. (At this time, the display will flash "PRESET", "PR 20", and the title of preset 20, visually displaying the recalled preset.

Recalling a Stored Preset

"PRESET" is a particular position of the SELECT PARAMETER control of the PROGAP. There are eleven positions in the SELECT PARAMETER control. Full counter clockwise is PRESET, which selects preset number and title. There are 128 different presets available to recall. Initially factory presets 1-20 are repeated through the remaining memory location (presets 21-128). Each individual preset stores a selected value for nine adjustable parameters. These nine stored values in each preset are what creates the sound or tone for that particular preset. Presets 1-20 are unchangeable factory presets.

To RECALL a particular preset, turn the SELECT PARAMETER control full counter clockwise. This position is PRESET. The display will flash "PRESET", then, "PR" and the preset number currently being used will flash for about two seconds, and then the preset title will appear on the display. To change to a different preset than what is currently displayed, turn the ADJUST control until the number of the desired preset is displayed. The new preset number and title will continue to flash until the RECALL button is pressed. Pressing the RECALL button will change the preset to the new preset number. Until the RECALL button is pressed, no change in preset takes place.

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To CANCEL the RECALL mode, either turn the ADJUST control back to the original preset number, or turn the SELECT PARAMETER control clockwise into another setting. No change will take place as long as the RECALL button is not pressed.

Changing Adjustable Parameter Values

One position clockwise of PRESET (full counter clockwise), is the first of the next nine positions of the SELECT PARAMETER control that are adjustable parameters for modifying the sound or tone of a particular preset. Each parameter is displayed when the SELECT PARAMETER control is turned to their position. (Refer to the BASIC FORMAT section for information on what stage of the PROGAP each parameter adjusts.) The parameter value stored for each of the nine adjustable parameters will be immediately modified by turning the ADJUST control to the desired new value. There are sixty-four different values for each parameter. As soon as the parameter value is changed, by turning the ADJUST control, to a value that is different than the value that is stored in that preset, the Altered indicator lights. The Altered indicator is the decimal point of the first character of the display. To immediately return to the stored value in the preset, press the RECALL button. The RECALL button will allow the PROGAP to alternate between the currently stored value and an adjusted value. This allows the user to compare the two values with the touch of a button. All of the nine adjustable parameters can be modified in this same manner.

Storing Changed Parameter Values

To STORE a changed parameter value into a preset, use the ADJUST control while in the adjustable parameter who's value you wish to change. (The Altered indicator light should be on, verifying that the value is NOT a stored value.) Essentially you are going to copy the changed preset over the currently stored preset. Press the EDIT/STORE button to initiate the copy mode. "ENTER PRESET" will scroll across the display. Wait until the scrolling is completed, and the current preset number and the current preset title is flashing alternately back and forth. Press the EDIT/STORE button, the display will flash "STORED" briefly, indicating that the changed parameters are now stored in that preset. If the EDIT/STORE button is pressed before the completion of the scrolling message "ENTER PRESET", the changed preset will NOT store. Press the EDIT/STORE button a second time to store.

Copying Presets

To COPY one preset into another, recall the preset that is to be copied. Changes to any of the adjustable parameters can be made at this time. Then after making any adjustments, press the EDIT/STORE button while in any one of the adjustable parameters. This will initiate the copy mode. "ENTER PRESET" will scroll across the display. Wait until the scrolling is completed. The current preset number and the current preset title will flash alternately back and forth until the ADJUST control is turned to the new preset number to which the copy is to be entered and the EDIT/STORE button is pressed. (The modified preset can be copied over itself simply by pressing the EDIT/STORE button without turning the Adjust control to a different preset number.) The selected preset number and title will continue to flash until the EDIT/STORE button is pressed. The display will then flash "STORED" briefly. This will indicate that the current preset parameters (including loop and controls status) were successfully STORED in to the new preset. If the EDIT/STORE button is pressed before the scrolling message "ENTER PRESET" has finished scrolling, no store will take place. Press the EDIT/STORE button a second time to store. This procedure is only for copying presets into presets 21-128, if the copy mode is initiated with the PROGAP in presets 1-20, "ENTER PRESET" will continue to scroll until a preset number other than 1-20 is selected. This is due to the fact that preset 1-20 are factory presets and can not be copied over.

To CANCEL the copy mode once it has been initiated, turn the Select knob one position in either direction. The display will briefly flash "CANCEL" and the PROGAP will return to the state it was in before the copy was initiated.

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Editing a Preset Title

The titles for presets 1-128 can ALL be modified, (including factory presets 1-20). To EDIT a title of a specific preset, that preset must be recalled. With the title of the preset to be changed displaying, pressing the EDIT/STORE button will initiate the title edit mode. "TITLE EDIT" will scroll on the display, then the current title will appear with the decimal point of the first character on (flashing). Turn the ADJUST control to change the first character of the title. When the desired character is selected, press the EDIT/STORE button to store the character and start editing the next character. Each time the EDIT/STORE button is pressed, the flashing decimal point will advance to the next character. (After each character is edited, the EDIT/STORE button must be pressed to store that character.) To end title editing, press the RECALL button, or turn the SELECT PARAMETER control.

Recalling MIDI Options

The most clockwise postion of the SELECT PARAMETER control is MIDI. The MIDI options available are as follows: mapping status, program mapping, controller mapping, MIDI channel number, and inc/dec footswitch type. These options may be stepped through by pressing the RECALL button repeatedly. At each option, the status can be viewed. By turning the SELECT PARAMETER control counter clockwise while in any mode but the program mapping or controller mapping, you will exit the MIDI options.

Mapping Status

Mapping status turns the program mapping ON or OFF. When the program mapping is OFF and a MIDI program change is initiated, the preset number recalled is the program number sent via MIDI. When the program mapping in ON and a MIDI program change is initiated, the program number sent via MIDI is mapped to a preset number and that preset is recalled by the PROGAP. The program mapping status may be immediately changed by turning the ADJUST control. The changed status will remain in effect until it is changed again, or the unit is powered down. If so desired, press the EDIT/STORE button to store the mapping status for the next time the unit is turned on.

Program Mapping

The program mapping is initially programmed for a one to one correspondence. (That is, MIDI program number nine is mapped to preset nine, ten to ten, etc.) The program mapping may be changed by selecting the MIDI program number via the SELECT PARAMETER control, then by selecting the preset number to map to via the ADJUST control. The preset number may also be turned to the OFF position, thereby not responding to the corresponding MIDI program change. Once the desired preset number is selected, press the EDIT/STORE button to save the change for each altered mapping. The mapping change must be STORED before the PROGAP will respond to it.

Controller Mapping

The controller mapping will map a PROGAP adjustable parameter to a MIDI controller number, starting at controller zero through controller 120, or OFF. The PROGAP's loop and control functions may also be mapped to a MIDI controller, which can be switched in or out via MIDI control. The controller mapping may be changed by selecting the parameter via the SELECT PARAMETER control, then selecting the control number via the ADJUST control. The control number may also be turned to the OFF position, thereby not letting that parameter respond to any MIDI controller change. Once the desired control number is selected, press the EDIT/STORE button to save the change for each altered mapping. The mapping change must be STORED before the PROGAP will respond to it.

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MIDI Channel Number

The MIDI channel number is the channel that the PROGAP will receive MIDI commands on. To immediately change the channel number turn the ADJUST control to the desired channel. The channel number may be set to channel number 1-16, OMNI (receives on all channels), or to the OFF position. (Thereby not allowing the PROGAP to receive any MIDI commands.) The changed channel will remain in effect until it is changed again, or the unit is powered down. If so desired, press the EDIT/STORE button to save the channel number for the next time the unit is turned on. Be sure that the MIDI channel of the PROGAP matches the MIDI channel of the transmitting device you wish to receive MIDI information from.

Footswitch Type Selection

The inc/dec footswitch type allows the PROGAP to increment or decrement to the next preset with a simple latch type footswitch or a momentary footswitch. To immediately change the footswitch type, turn the ADJUST control. This change will stay in use until it is changed again, or the unit is turned off. If so desired, press the EDIT/STORE button to save the change for the next time the unit is turned on.

Loop and Control Functions

The PROGAP has an audio path loop function, where an audio effect can be placed in the audio path of the PROGAP. The loop can also be used as a mute function by placing nothing in the loop jacks and turning the loop on. The PROGAP also has two control functions, which are simply relay contacts. The controls can be used to switch in or out other devices via their footswitch jack. The loop and controls status are stored with each preset. Thereby recalling a preset also restores the loop and controls. These functions can be altered immediately by pressing the individual buttons for the functions you desire changed. However, it is necessary to STORE that into memory if you wish it to be recalled in a preset. To store a Loop or Control status, recall the preset that is to have a changed status. Make any status changes by pressing the individual buttons until the corresponding LEDs are on or off as desired. Then you must be in one of the adjustable parameters so you can initiate the copy mode. "ENTER PRESET" will scroll across the display. Wait until the scrolling is completed, and the current preset number and the current preset title is flashing alternately back and forth. Press the EDIT/STORE button, the display will flash "STORED" briefly, indicating that the changed parameters are now stored in that preset. If the EDIT/STORE button is pressed before the completion of the scrolling message "ENTER PRESET", the changed preset will NOT store.

Setting the Output Level

The PROGAP also has a master output level located on the faceplate. This output level will work in conjunction with the programmable output level. Set the programmable OUTLEV parameter to the relative output level you wish to use. The front panel Output Level Control is the "master" control Full counter clockwise will give ZERO output, and full clockwise will give the relative output level that was set by the programmable OUTLEV parameter.

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(DIGITALLY CONTROLLED PROGRAMMABLE GUITAR PREAMP)

MODEL: PROGAP MIDI IMPLEMENTATION CHART

DATE: APRIL 21, 1989
SOFTWARE VERSION: 1.0

	FUNCTION		RECOGNIZED	REMARKS
BASIC CHANNEL	DEFAULT		1-16, OMNI, OFF	MAY BE SAVED IN
	CHANGED		1-16, OMNI, OFF	NONVOLATILE MEMORY
MODE	DEFAULT		X	
	MESSAGES		X	
	ALTERED		X	
NOTE NUMBER	TRUE VOICE		X	
VELOCITY	NOTE ON		X	
	NOTE OFF		X	
AFTER TOUCH	KEY'S		X	
	CHANNEL		X	
PITCH BEND			X	
CONTROL CHANGE		0	0	PRE EQ. LEVEL
		1	0	PRE EQ. FREQUENCY
		2	0	GAIN LEVEL
		3	0	BASS LEVEL
		4	0	POST EQ. LEVEL
		5	0	POST EQ. FREQUENCY
		6	0	TREBLE LEVEL
		7	0	HUSH THRESHOLD
		8	0	OUTPUT LEVEL
		9	0	LOOP IN/OUT
		10	0	CONTROL 1 IN/OUT
		11	0	CONTROL 2 IN/OUT
		0-120, OFF	0	*MAPPED PARAMETER
PROGRAM CHANGE	TRUE NUMBER		0	**PROGRAMS 1-128
SYSTEM EXCLUSIVE			X	
SYSTEM COMMON	SONG POSITION		X	
	SONG SELECT		X	
	TUNE REQUEST		X	
SYSTEM REAL TIME	CLOCK		X	
	COMMANDS		X	
AUX. MESSAGES	LOCAL ON/OFF		X	
	ALL NOTES OFF		X	
	ACTIVE SENSING		X	
	SYSTEM RESET		X	

NOTES **ACTUAL MIDI PROGRAM VALUE SENT IS 0-127, CORRESPONDING TO PRESETS 1-128. OPTIONAL IMPLEMENTATION OF PROGRAM MAPPING ALSO AVAILABLE.
*CONTROLLER MAPPING AVAILABLE.

0 : YES X : NO

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SPECIFICATIONS

The following page contains a chart of the values for the factory programmed presets.

Steve Lukather designed presets 1 - 5. The Amplifier Output jack was used with presets 1-4 and the Full Range Output jack was used with preset 5. Steve Lukather used **EMG** pickups and a **HH V800** mosfet amplifier. For presets 1-3, he used 4 X 12 **Marshall™** cabinets with vintage 30W **Celestions**. For preset 4, Steve used **EVM12L** cabinets and for preset 5, he used **N510** cabinets.

Allan Holdsworth designed presets 6 - 10. Allan used the Amplifier Output jack of the ProGAP straight into his rig and into guitar cabinets.

Rocktron designed presets 11 - 20. The Amplifier Output was used with all these presets except preset 16, which used the Full Range Output jack.

Rocktron Corporation would like to extend special thanks to both Steve Lukather and Allan Holdsworth for their time and efforts in designing presets for the ProGAP. We sincerely appreciate their participation.

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FACTORY PRESETS 1–20		PARAMETERS								
PRESETS	TITLES	1LEVEL	1FREQ	GAIN	BASS	2LEVEL	2FREQ	TREBLE	HUSH	OUTLEV
1.	LUKE 1	+9.0	.77K	70	+12.0	−3.5	.80K	+14.2	−33	−8.0
2.	LUKE 2	0.0	1.70K	30	+12.0	−3.0	.65K	+15.0	−40	−6.0
3.	LUKE 3	0.0	.45K	12	+12.0	−3.0	.65K	+15.0	−70	−1.0
4.	LUKE 4	−15.0	2.20K	50	+12.0	+3.7	7.40K	+15.0	−36	−10.0
5.	LUKE 5	+9.0	2.55K	35	+5.8	−1.8	2.35K	+10.0	−50	−5.0
6.	ALLAN 1	+15.0	.69K	70	+0.2	−3.7	8.00K	+1.0	−44	+2.0
7.	ALLAN 2	+15.0	1.40K	CLEAN	+2.0	+12.0	8.00K	+12.0	−43	+2.0
8.	ALLAN 3	+11.5	3.26K	CLEAN	+1.1	+5.0	8.00K	+15.0	−43	+6.0
9.	ALLAN 4	+15.0	.60K	70	+0.8	+0.7	4.22K	+0.8	−40	+1.5
10.	ALLAN 5	+15.0	1.60K	27	+2.0	−3.7	8.00K	+1.4	−45	+2.0
11.	BITE	−4.4	.60K	CLEAN	+6.8	+12.0	1.78K	+15.0	−47	+1.0
12.	HOT	+14.0	.99K	70	+9.0	+1.0	.66K	+9.4	−37	−9.0
13.	SPARKL	+9.5	3.25K	CLEAN	+12.0	+12.0	5.34K	+15.0	−47	−1.0
14.	CRUNCH	+10.0	2.30K	22	+12.0	+8.0	8.00K	+3.0	−25	−3.5
15.	WARM	−14.0	.64K	CLEAN	+10.4	+12.0	3.69K	+15.0	−50	+6.0
16.	STUDIO	+15.0	1.64K	70	+3.0	−3.7	8.00K	+3.0	−44	−1.5
17.	CRANK	+15.0	1.50K	70	+10.0	0.0	.66K	+12.8	−40	−10.0
18.	FLASH	+15.0	.66K	70	+12.0	+2.5	6.20K	+8.4	−45	−9.0
19.	BRIGHT	+9.5	3.15K	.5	+12.0	+12.0	5.81K	+7.0	−45	0.0
20.	BURN	+14.0	2.25K	70	+11.5	+2.2	7.61K	+10.4	−45	−9.0
PRESETS	TITLES	1LEVEL	1FREQ	GAIN	BASS	2LEVEL	2FREQ	TREBLE	HUSH	OUTLEV

SPECIFICATIONS

RFI Shielding: Meets FCC Class B computing device equipment requirements.

INPUT

Input Impedance	470K Ohms
Max. Input	+20dBu
Input Jack	1/4" mono
Footswitch Jack	1/4" stereo
(T=Increment R=Decrement S=Ground)	

NOISE FLOOR

-92dBu clean mode, HUSH active
-88dBu distortion mode, HUSH & AGX active

DYNAMIC RANGE

over 110dB

EFFECTIVE NOISE REDUCTION

up to 55dB

OUTPUT

Max. Output Level	+20dBu
Output Impedance	less than 150 Ohms
Amplifier Output Jack	1/4" mono
Full Range Output Jack	1/4" mono

MIDI IN

standard 5-pin DIN

MIDI THRU

standard 5-pin DIN

POWER REQUIREMENTS

110/120 VAC @ 50/60Hz

DIMENSIONS

19" x 6" x 1 3/4"

NOTE: 0dBu = 0.775V RMS

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FCC NOTICE

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing devices in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient the receiving antenna
-Relocate the product with respect to the receiver
-Move the product away from the receiver
-Plug the product into a different outlet so that product and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful. "How to Identify and Resolve Radio-TV Interference Problems."

This booklet is available from the:

U.S. Government Printing Office
Washington, D.C. 20402
(Stock Number 004-000-00345-4)

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MAINTENANCE

This unit is designed to provide years of trouble-free service but requires careful handling. To maintain this unit in proper working condition read the Safety instructions. If any problem is encountered do not return the unit to your Dealer. Rocktron will accept full responsibility for all warranty repairs.

WARRANTY

All parts and workmanship of this Rocktron product are fully guaranteed to be free of defects under normal use and service for a period of TWO years from date of purchase.

The warranty will remain in effect until the original expiration date, regardless of whether or not the product is re-sold in the interim.

It is not required that you fill out a form for warranty registration. We would, however, recommend that the dated proof of purchase be retained throughout the warranty period.

Any damage resulting from mis-use or failure to follow instructions and precautions as stated in the product manual will void this warranty.

Should this Rocktron product require repair, Rocktron will assume responsibility for repair service. Do not return the product to the dealer. Simply repack the unit, sending along a description of the problem to: Rocktron Corporation, 1633 Star Batt Drive, Rochester, MI 48309. All shipping charges must be fully prepaid.

This warranty is void if the original Serial Number has been altered or removed, or if this unit has been altered in any way.

Rocktron Corporation reserves the right to make changes in design and/or improvements upon their products without any obligation to include those changes in any products previously manufactured.

There is no other express warranty on goods covered by this agreement.

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