

GS30

DIGITAL MULTI-EFFECT
GUITAR SYSTEM



OWNER'S MANUAL

DOD

HA Harman International Company



These symbols are internationally accepted symbols that warn of potential hazards with electrical products. The lightning flash means that there are dangerous voltages present within the unit. The exclamation point indicates that it is necessary for the user to refer to the owners manual.

These symbols warn that there are no user serviceable parts inside the unit. Do not open the unit. Do not attempt to service the unit yourself. Refer all servicing to qualified personnel. Opening the chassis for any reason will void the manufacturer's warranty. Do not get the unit wet. If liquid is spilled on the unit, shut it off immediately and take it to a dealer for service.

Disconnect the unit during storms to prevent damage.

Electromagnetic Compatibility

Operation is subject to the following conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.
- Use only shielded interconnecting cables.
- Operation of this unit within significant electromagnetic fields should be avoided.

Warning

For your protection, please read the following:

Water and Moisture: Appliances should not be used near water (e.g. near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.) Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

Power Sources: The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

Grounding or Polarization: Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

Power Cord Protection: Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

Servicing: To reduce the risk of fire or electrical shock, the user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

For units equipped with externally accessible fuse receptacle: Replace fuse with same type and rating only.

DECLARATION OF CONFORMITY

Manufacturer's Name: DOD Electronics
Manufacturer's Address: 8760 S. Sandy Parkway
Sandy, Utah 84070

declares that the product:

Product Name: GS30

Product Options: All (requires a Class II power adapter that conforms to the requirements of EN60065, EN60742, or equivalent).

conforms to the following product specifications:

Safety: EN 60065 (1993)
IEC65(1985) with Amendments 1, 2, 3

MC: EN 55013 (1990)
EN 55020 (1991)

Supplementary Information:

The product herewith complies with the requirements of the Low voltage directive 73/23/EEC and the EMC Directive 93/36/EEC as amended by directive 93/68/EEC.

DOD Electronics
President
8760 S. Sandy Parkway
Sandy, Utah 84070, USA
Effective (5/11/99)

European Contact: Your local DOD Sales and Service or
Harman Music Group
8760 S. Sandy Parkway
Sandy, Utah, USA
Tel: (801) 568-7642
Fax: (801) 568-7638

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Introduction

Congratulations!

you are now the proud owner of the GS30 complete guitar system. The GS30 is an extremely powerful tool capable of producing virtually any sound that you can imagine. It offers Amp/Guitar Modeling, and a host of great sounding digital effects including: compression, Distortion, Equalization, Noise Gate, Chorus, Flange, Phaser, Tremolo, Pitch Shifter, Detuner, Ring Modulator, Chorus, Reverb, Delay, Enveloped Effects, Pitch Bending, Wah, Auto Wah, Tape Delay, Ping Pong Delay, Delay and Reverb. The GS30 also includes a chromatic tuner, the Jam-A-Long and Learn-A-Lick function and a built in expression pedal capable of controlling effects in real time. This Owner's manual is your guide to getting the most out of your GS30. Please read it carefully, to get familiar with the controls of the GS30. This will ensure years of musical satisfaction.

Included Items

your GS30 was carefully assembled and packaged at the factory. Before proceeding any further please make sure the following items are included.

- 1 GS30 Guitar System
- 1 PS750 External Power Supply
- 1 Owner's Manual
- 1 Warranty Registration Card
- 1 Preset Card

Please save all packing materials, and take a moment to fill out the warranty registration card. It is your safeguard in the unlikely event that your GS30 needs servicing. Please use the packing materials to return the unit if necessary.

Features

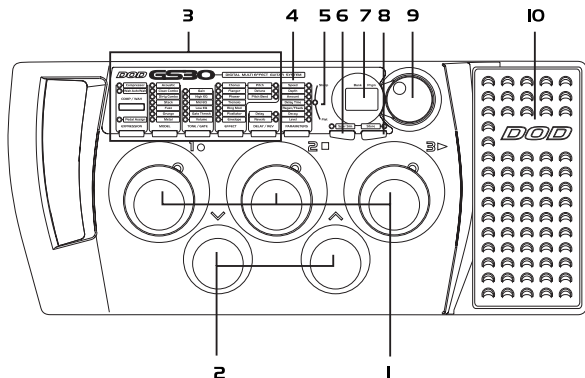
Authentic Amp/Guitar Modeling
Built-in Expression Pedal
30 User/30 Factory Presets
Up to 10 Effects at Once
Stereo Outputs

- *Chromatic Tuner*
- *Externally Isolated Transformer*
- *Learn-A-Lick*
- *Jam-A-Long*
- *Headphone Output*

SECTION ONE - Introduction

A Guided Tour of the GS30

Front Panel



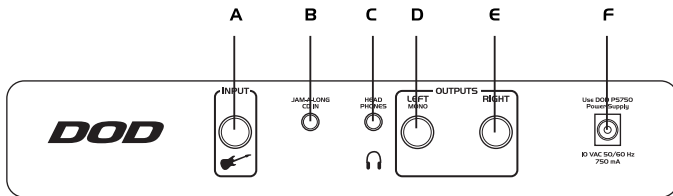
Program Footswitches - These switches provide access to the GS30 user presets. They are also used to bypass the GS30, access the Tuner, and perform various functions for the Learn-A-Lick feature.

2. Bank Footswitches - These two switches are used to advance or reverse the currently selected Bank. The Bank Up switch is also used to access the Learn-A-Lick mode.

- 3. Edit Section** - These columns and buttons are used to select, bypass, and edit each specific effect group. The effects which are currently active within a preset are indicated by a lit LED. The button at the bottom of each column will select the effect group within the indicated column. Successive presses of the same button will advance to the next type of effect within that group. The currently selected effect will be represented by a flashing LED. The effect groups include Compression, Wah, Expression Pedal, Amp/Guitar Modeling, Tone and Gate, 10 Modulation/Pitch Shift Effects, Delay, and Reverb.
- 4. Parameter Section** - This column represents the various aspects of the Mod/Pitch, Delay, and Reverb Effects which can be fine tuned to suit your application. When any of these three effect groups are selected, the associated parameter LEDs will light indicating that you can fine tune these aspects of the selected effect. The parameters are selected with the button at the bottom of the parameter column, and the selected parameter will be indicated by a flashing LED. Successive presses of the parameter button will advance to the next available parameter. Once the desired Parameter has been selected, the current value will be shown in the display (7), and you may adjust the value of the parameter with the Data Wheel (9). The Parameter LEDs also serve as sharp and flat indicators in the tuning mode.
- 5. Tuning LEDs** - The In Tune LED works in conjunction with the parameter LEDs while you are in Tuning mode. Once the Tuner has been accessed, the Display (7) will show the note being played and the parameter LEDs will indicate whether you are sharp or flat of the displayed note. Parameter LEDs above the In Tune LED indicate that you are sharp and need to tune down. Parameter LEDs below the In Tune LED indicate that you are flat and need to tune up. Your note is in tune when the In Tune LED is the only one lit.

- 6. Speaker Simulator** - This button is used to engage or disengage the Speaker Simulator. The LED will light when the Speaker Simulator is engaged.
- 7. Display** - The Display serves four functions. In performance mode, the Display will indicate the Bank and Preset that is currently active. In edit mode, the Display will show the status or value of the effect or effect group being edited. In Tuner mode, the display will show the note played. In Learn-A-Lick Mode, the Display will show the status of the function, and the selected play back speed.
- 8. Store Button and LED** - After editing a Preset, your modifications must be stored in order for the GS30 to remember the changes that you made. When you change any aspect of a Preset, the Store LED will light indicating that you need to use the Store button to save the change.
- 9. Data Wheel** - This knob is used to select the Preset in performance mode, and to increase or decrease the value of a Parameter in the edit mode. It is also used to change the tuning reference in Tuner mode.
- O. Expression Pedal** - This pedal can be assigned to control one of 9 different Parameters in real time for each Preset. As you rock the pedal back and forth, the value of the assigned Parameter will change giving you expressive control over the effects.

Rear Panel



A. Input Jack - Connect your instrument to this jack.

B. Jam-A-long/Learn-A-Lick - Connect from the headphone output of your tape or CD player to this jack. This is used for playing along with your tapes and CD's, or recording material for the Learn-A-Lick function.

C. Headphone - This jack is used for connecting a pair of stereo headphones to the GS30.

D. Left Output - Connect from this jack to the input of your amplifier for mono applications, or to the left channel of a stereo power amp for stereo applications.

E. Right Output - Connect from this jack to a second amplifier, or right channel of a stereo power amp for stereo applications.

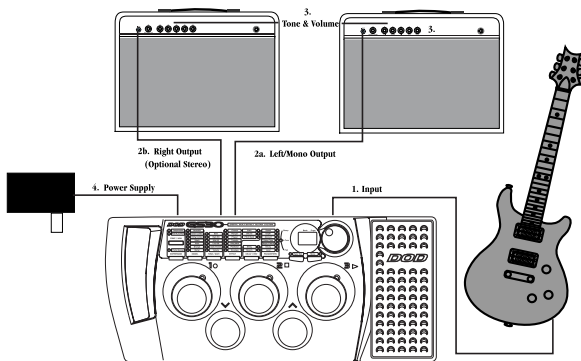
F. Power Jack - Connect only the PS750 power supply to this jack.

Getting Started

The GS30 is ready for you to plug in and play. It already has a variety of sounds programmed into both the 30 factory and 30 user Presets. You will find that the User Presets are exact duplicates of the Factory Presets. The factory Presets are permanently written into the GS30 and cannot be changed. The User Presets can be overwritten with your sound creations as many times as you choose.

Making Connections

The GS30 can be run in mono or stereo. The following connections outline the set up for both applications. These steps should be performed in the order that are listed here. Make sure that you do not connect the power to the GS30, or turn on the power to your amplification until the completion of these steps.



- . Connect your instrument to the GS30 input jack.
- a. **(mono)** Connect the left output to the input of your amplifier, or line input of a mixing console.
- b. **(stereo)** Connect the left and right outputs to the inputs of two amplifiers, or two line inputs of a mixing console.
- . Set the tone controls of the amplifier(s) or mixing console to the flat or 0 position. If you are running stereo into a mixer set the pan controls hard left and hard right. Turn your amplifier or mixer's volume level down.
- . Apply power to the GS30 by connecting the PS750 from the power jack to an AC outlet.
- . Turn the power switch of your amplifier or mixer to the "on" position.
- . Begin playing and gradually increase the amplifier or mixer's volume until the desired level is achieved.

SECTION TWO - About the GS30

Performance Mode

The Performance Mode of the GS30 enables you to use the numbered footswitches or Data Wheel to change from one Preset to another, the Bank Footswitches to change Banks and the Expression Pedal to vary the amount of the assigned Parameter. From the Performance mode you may also bypass the effects by pressing the currently selected Footswitch, or access the built-in chromatic tuner by pressing and holding the currently selected footswitch.

Selecting a Preset

The GS30 has 30 Factory and 30 User Preset locations. The Presets in the GS30 are arranged in 10 Banks with 3 presets in each bank. The User Presets are indicated by a decimal point in the bottom right corner of the Display. The Factory Presets do not have the decimal point. Accessing the Presets may be done by using the Data Wheel or footswitches.

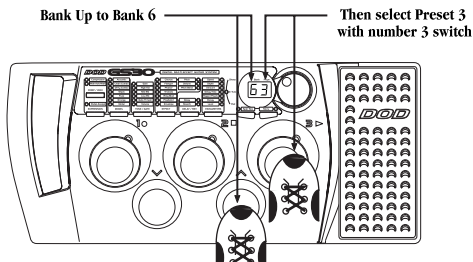
Data Wheel

While in Performance mode, the Data Wheel is used to select Presets. Simply rotate the Data Wheel until the desired preset number is shown in the Display. The Data Wheel will scroll through all of the Presets in the User set, and then scroll through all of the Presets in the Factory set. If you continue to rotate the Data Wheel, the GS30 will “wrap around” and access the User Presets again. In edit mode, rotating the Data Wheel will change the status or value of the selected effect or parameter. In Tuner mode, rotating the Data Wheel will change the tuning reference. In Learn-A-Lick mode, rotating the Data Wheel will change the playback speed of the recorded material.

Footswitches

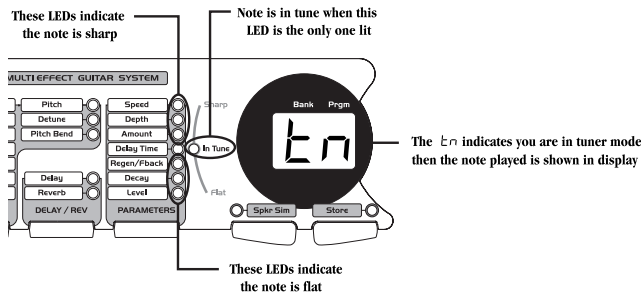
The footswitches are also used to select a Preset. The Bank Up and Bank Down footswitches advance or reverse banks, and the 1-3 numbered footswitches select the Preset within the active Bank. Successive presses of the Bank Up or Down switches will advance or decrease to the next Bank of Presets. Every time that a new Bank has been elected, the numbered footswitches will flash indicating that you need to select a Preset using these footswitches in order to activate that Bank. If no preset is selected within 5 seconds, the GS30 will revert to the last Bank and reset that had been active. Once you have selected the desired Bank, simply use the numbered footswitches to select one of the three possible Presets. In other words, if you want to access User Preset 63, press the Bank Up or Down switch repeatedly until the display shows Bank 6. Then press the #3 footswitch to access Preset 3. The display will then show 63. The Preset footswitches are also used to bypass the GS30. Press the footswitch which has a lit LED above it to bypass the unit. The display will show bP indicating that it is bypassed. Press any numbered footswitch to re-engage the GS30.

Note: The footswitches will only activate the User Presets and Banks. To access the Factory Presets and Banks, you will need to use the Data Wheel and scroll above or below the last User Bank/Presets.



Accessing the Tuner

The GS30 includes a chromatic Tuner to quickly get your instrument in tune. To access the Tuner, press and hold the numbered footswitch that is currently active (the footswitch with a lit LED above it) until the letters **ET** appear in the display (and abbreviation for tuner). You can then play any string on your guitar. The display will show the note played, and the Parameter LEDs will light to let you know whether you are sharp or flat. Your note is in tune when the In Tune LED is lit. The LEDs above the In Tune LED indicate that you are sharp and need to tune down. The LEDs below the In Tune LED indicate that you are flat and need to tune up.



The tuning reference on the GS30 has been set to A=440 (concert pitch) from the factory. You may change the tuning reference for drop tunings by rotating the Data Wheel at any time while in the tuner mode. Your tuning choices are **A** (standard tuning), **A $\flat$** (1/2 step flat), **G** (whole step flat), and **G $\flat$** (one and 1/2 steps flat).

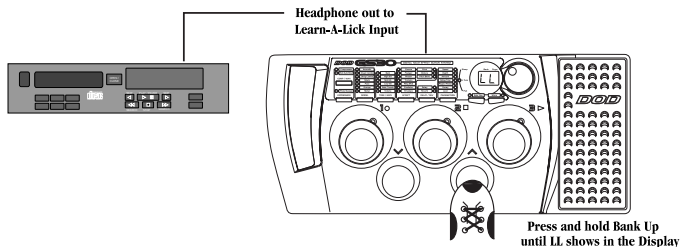
Pressing any footswitch will exit the tuner mode and return you to the performance mode.

Learn-A-Lick/Jam-A-Long

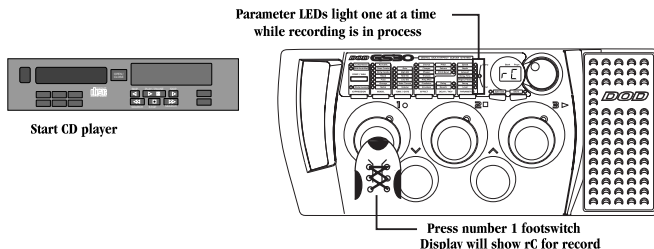
The Jam-A-Long feature lets you connect a tape or CD player to the GS30 and mix the music with your guitar signal. The GS30 also includes a powerful teaching tool called “Learn-A-Lick”. This feature lets you record solos that are too fast to hear much less learn, and then slow them down to a speed where you can figure out the notes being played. To use this feature you will need a tape or CD player, a cable with an 1/8” stereo jack on one end and a connector appropriate for your tape or CD player’s headphone output on the other end, and the tape or CD with the “too-fast-solo” on it.

Just follow these steps and you’ll virtually have a personal guitar instructor teaching you all of those speed burning licks.

- Connect the 1/8” stereo jack to the Learn-A-Lick jack on the back panel of the GS30.
- Connect the other end of the cable to your tape or CD player’s headphone output.
- Cue up the recording to the solo that you want to learn.
- Press and hold the Bank Up switch until the display shows **LL** for a moment and will then change to **St** (an abbreviation for “stop”).



. Press the number 1 footswitch as you start your tape or CD player. The display will show $r\bar{C}$ indicating that it recording. It will record 16 seconds of incoming material. The Parameter Edit LEDs will light one at a time as our record time is used.



. Once the recording is finished the GS30 will start playback automatically. The Parameter Edit LEDs will light one at a time to show where you are in the recording. The recorded lick will play through in its entirety, and then start gain automatically. Pressing the number 3 footswitch will back up the recording in 500 millisecond increments. o start the lick from the beginning, press the number 2 footswitch to stop the playback, and then press the umber 3 footswitch to begin again.

. Successive presses of the Bank Down button will change the playback speed. Your choices are $7\bar{B}$ ($7/8$ of the ecoreded speed), $3\bar{4}$ ($3/4$ of the recorded speed), $5\bar{B}$ ($5/8$ of the recorded speed), $1\bar{2}$ (half speed), $3\bar{B}$ ($3/8$ of the recorded speed), $1\bar{4}$ ($1/4$ of the recorded speed), and $F\bar{L}$ (full or normal speed).

o exit the Learn-A-Lick mode, press and hold the Bank Up switch until the display shows a Preset number again.

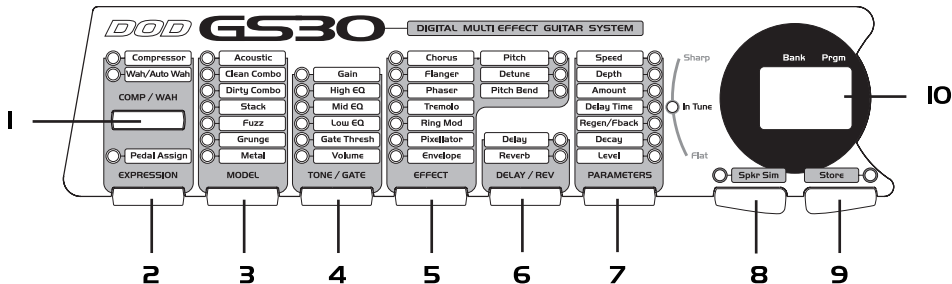
SECTION THREE - Edit Mode

Editing a Preset

The GS30 allows you to edit the User Presets to your liking. You can change the effects that are used in the Preset, alter the values of the effect Parameters, or bypass an effect. This is a very simple process and gives you the ability to create custom sounds to suit your application or taste. You must start with an existing Preset. It is not possible to start with a blank Preset. Once you have selected a Preset as your starting point, you can select the effect type that you want and then fine tune the Parameters of the effects.

User Interface

Choosing the type of effect that you want to use in a Preset is extremely easy. The GS30 has been divided into groups of effects. Each effect group is accessed by a dedicated effect group button. Simply press the effect button that represents the effect group that you want to use, change, or disengage. The following describes the functions of each button in the user interface while selecting and editing effects:



Comp/Wah - This button will access the Compressor and Wah effects. Successive presses of this button will toggle between the Compressor and the Wah. The selected effect is indicated by the flashing LED. The status of the selected effect can then be changed by rotating the Data Wheel. Compression and Wah can be used simultaneously. See page 19 for a complete description of Compression and Wah effects.

2. Expression - This button is used to assign functions to the Expression Pedal. Pressing this button once will cause the Expression LED, and the LED of the Parameter currently assigned to the Expression pedal to begin flashing. Rotating the Data Wheel will change the assignment. The new Parameter selection will be indicated by a flashing LED in the effect group, or parameter section. Only one Parameter at a time can be controlled by the Expression Pedal. Successive presses of this button will allow you to edit the range of the Expression Pedal. See page 16 for more information on assigning the Expression Pedal.

3. Model - This button will access the Amp and Guitar Modeling section. The LED next to the currently selected Amp/Guitar Model will flash. Successive presses of the Model button will advance through all available Amp and Guitar Models. Only one Model can be used in each Preset. The Display will show the status of the Modeling section as either , or two dashes -- indicating bypass. Rotate the Data Wheel to change between on and bypass. See page 19 for a complete description of Amp/Guitar Models.

4. Tone/Gate - This button will access the Gain, EQ, and Level Parameters of the selected Model, as well as the Noise Gate Threshold. The selected Modeling Parameter will be indicated by a flashing LED. The Display will show the value of the selected Parameter, and rotating the Data Wheel will adjust the value. Successive presses of the Tone/Gate button will advance through all of these Parameters. A separate value for each Modeling Parameter can be stored to Presets. See page 19 for a complete description of Tone adjustments and Noise Gate effect.

5. Effect - This button will access the Modulation and Pitch shifting effects. The currently selected type of effect in this group is indicated by a flashing LED. Successive press of the Effect button will select a different type of effect within this group. The choices include: Chorus, Flanger, Phaser, Tremolo, Ring Modulator, Pixellator, Enveloped Flanger, Enveloped Phaser, Pitch Shift, Detune, and Pitch Bend. Only one type of Effect from this group may be used at a time. The Display will show the status of the Effect section as either , or two dashes -- indicating bypass. If the Enveloped Effect is chosen, the Display will show an abbreviation for the type of Envelope effect. Rotating the Data Wheel will change the status of the Effect type. You will notice that one or more of the Parameter LEDs will light with each selection in the Effect group. This means that those Parameters are associated with the selected Effect, and are available for further adjustment. You will need to use the Parameter button to access the associated Parameters. See page 20 for a complete description of these effect types.

6. Delay/Reverb - This button will access the Delay and Reverb effects. The selected effect type will be indicated by a flashing LED. Successive presses of the Delay/Reverb button will toggle between the two effects. The status of the selected effect and the current type of Delay and Reverb are shown in the Display. Rotating the Data Wheel will change the status and/or the type of Delay and Reverb. Both the Delay and Reverb can be used simultaneously in any Preset. You will notice that one or more of the Parameter LEDs will light with each selection in this group. This means that those Parameters are associated with the selected effect, and are available for further adjustment. You will need to use the Parameter button to access the associated Parameters. See page 22 or a complete description of Delay and Reverb effects.

7. Parameters - This button provides access to any Parameters associated with the Effect group, Delay, and reverb. The Parameter button will only work when one of these effects groups has been selected. The lit LEDs indicate which Parameters are associated with the selected effect, and the currently selected parameter will be indicated by a flashing LED. Successive presses of the Parameter button will advance through all Parameters available for the selected effect. The Display will show the value of the selected Parameter, and rotating the Data Wheel will change the value of the selected Parameter.

8. Spkr Sim - This button turns the Speaker Simulator on and off. The status of the Speaker Simulator is indicated by the LED above this button.

9. Store - This button is used to save changes to Presets. The LED above this button will light whenever a change has been made to effects or parameters in a preset, indicating that you need to perform the Store function in order to retain your changes. See page 18 for more information on storing procedures.

0. Display - While in editing mode, the Display will show the status of the selected Effect, or the value of the elected Parameter. When an effect is bypassed, the display will indicate bypass by showing two dashes --. Rotating the Data Wheel will re-engage the effect, or change the value of the selected Parameter.

Expression Pedal Assignments

The GS30 allows you to assign the Expression Pedal to control various Parameters in real time. Only one parameter at a time can be assigned to the Expression Pedal. In order for the Expression Pedal to work, it must be assigned to the Parameter of an effect currently active in the Preset. The following steps outline the procedure for assigning a Parameter to the Expression Pedal:

- Press the Expression button once. The Expression LED, and the LED of the Parameter currently assigned to the Expression Pedal begin to flash.
- Rotate the Data Wheel to select the Effect or Parameter you wish to assign. The selection will be indicated by a flashing LED in the effect group, or parameter section. The Display will show a number between 1 and 9 representing the 9 possibilities. Your choices include: -- Not Assigned

1 - Volume

2 - Wah

3 - Amp Gain

4 - Modulation Speed

5 - Modulation Depth

6 - Modulation Level

7 - Bend Amount

8 - Delay Level

9 - Reverb Level

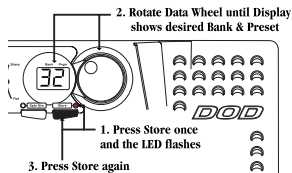
nce the desired effect or Parameter has been selected, you can set minimum and maximum values for the xpression Pedal. These are stop points which limit the range of variance for the Pedal.

- . - Press the Expression button a second time to set the toe up value. The Display will alternate between showing  and the value currently assigned. Rotate the Data Wheel to select the value that the Expression Pedal will reach in the toe up position.
- . - Press the Expression button a third time to set the toe down value. The Display will alternate between showing  and the value currently assigned. Rotate the Data Wheel to select the value that the Expression Pedal will reach in the toe down position.

Storing/Copying a Preset

nce you have edited a Preset to your liking, you must store the changes in order for the GS30 to remember your settings. There are three steps to storing a Preset.

- . Press the Store button once. The Store LED will flash and the User LED lights. The flashing LED is asking “where do you want to store this sound”?
- . Use the Data Wheel to select the User Bank and Preset location for this new sound to be saved.
- . Once you have selected the desired Preset location, press the Store button again. The new sound will be saved in the location you selected.



Note: This same procedure can be used to copy a Preset to a different Preset location.

o abort the store function, press any footswitch and do not press the Store button a second time.

SECTION FOUR - Effects Definitions

Compression - A compressor is a tool used to limit the dynamic range of an instrument. In other words, it sets a boundary for the volume the instrument will be able to reach. The nature of limiting the dynamics of an instrument tends to provide a smooth, even texture to the sound of the instrument. The GS30 has three different compressor settings: 1 (low), 2 (medium), and 3 (high). These different settings determine the ratio of the compressor. The ratio is the relationship between the input volume to the output volume.

Wah and AutoWah - Wah is a classic effect which provides a sweepable filter giving the instrument a vocal type sound. The regular Wah is controlled by the Expression Pedal. AutoWah is a Wah effect which is automatically controlled based on how hard you play. The GS30 includes 3 types of Wah (1 - Classic Wah, 2 - Treble Wah, 3 - Bass Wah), and 10 types of AutoWah (4 1 - 4 5 - upward sweeping AutoWah with a progressing degree of signal strength required to trigger the AutoWah, 4 1 - 4 5 - downward sweeping AutoWah with a progressing degree of signal strength required to trigger the AutoWah).

Modeling - Modeling is a new technology which allows you to emulate the sounds and frequency response of different types of amplifiers and guitars. Modeling applies the mathematical equation of an amplifier to your guitar signal. The modeling in the GS30 can emulate the sound of an acoustic guitar, or some of the greatest amps in musical history.

The GS30 has an acoustic guitar simulator, and 6 different Amp Models to choose from: Clean Combo, Dirty Combo, Stack, Fuzz, Grunge, and Metal. Each Amp Model as well as the acoustic simulator contains 6 adjustable parameters: Gain (the amount of distortion), High EQ (treble), Mid EQ (mid range tone), Low EQ (bass), Gate threshold (see noise gate definition), and Volume (signal strength).

Noise Gate - A Noise Gate is a barrier that will close when you are not playing, and open when you are laying. When the gate is closed, it will not allow ambient noise to come through. A noise gate uses a threshold, which is the volume level required to open the gate. If your guitar signal is not strong enough to cross the threshold, the gate will not open, and no sound will be heard. The gate on the GS30 is also used for volume swells. When you have selected the gate to act as a volume swell, you can strum your guitar, and the sound will fade in. There are 10 Gate Threshold settings (1 - 10 with 1 being the most sensitive and progressing to 10 requiring the strongest level to open), and 5 Auto Swell settings (A1 opens with a weak signal and fades in quickly, progressing to A5 requiring a stronger signal and fades in slower).

Chorus - A Chorus is an effect that adds thickness to your guitar signal. It is splitting your guitar signal, adding short delay to one of the signals, and then changing the delay time at an even rate. This results in a slight fluctuation in pitch of the delayed signal giving the thickness of two guitars playing together.

Flange - A Flanger is similar to a Chorus as far as what it is technically doing, but it sounds very different. It adds a “whooshing up, and down” sound to your guitar by incorporating regeneration into the delayed signal.

Phaser - A Phaser is an effect that splits the incoming signal, and then changes the phase of one of the signals. This phase is changed at an even rate, and mixed back in with the original sound. The changing phase mixed with the original signal causes different frequencies to be canceled, resulting in adding a warm, twisting effect to your instrument.

Tremolo - Tremolo is an effect that modulates the volume of your guitar up and down at a steady rate. The tremolo offers two selections of wave forms: triangle and square wave. A triangle wave form is shown as  in the display and is smooth. A square wave is shown as  in the display and is more abrupt.

Ring Mod - The ring modulator modulates the guitar's volume and then takes the sum, and difference of the modulation frequency and instrument frequency, and mixes it with the original signal. The result is a metallic ringing sound.

Pixellator - A pixellator degrades the signal by undersampling it. The result is an unnatural distortion similar to those used in today's techno and industrial styles of music.

Envelope - Envelope can be linked to *FL* (Flanger) or *PH* (Phaser). The Envelope alters your sound based on how hard you play. The softer that you play, the less intense the sweep of the flanger or phaser effect will be. The harder that you play, the more intense the sweep will be.

Pitch - Pitch shifting is like having another guitarist playing with you. It makes a copy of your signal, and then shifts it to a different pitch. The result is two different notes playing together. The Amount Parameter determines the interval of the shifted note. The possible intervals are: bA = One octave down with no dry signal mixed in, $2d$ = two octaves down, $1d$ = one octave down, -5 = a fifth below, -4 = a fourth below, $b3$ = a minor third above, 3 = a Major third above, 4 = a fourth above, 5 = a fifth above, $b6$ = a flattened sixth above, 6 = a sixth above, and $1u$ = an octave up.

Detune - Detuning is an effect that uses the pitch shifting technology, but does not shift the pitch a full note. Instead, it just takes the shifted pitch slightly out of tune with your note, as if two guitarists were playing the same note. The Amount Parameter is available with this effect and determines the detuning applied which is measured in cents (100 cents = 1 semitone). The Amount is variable from -18 (18 cents below) to 18 (18 cents above).

Pitch Bend - Pitch Bend is an effect that will require the expression pedal. When the expression pedal is assigned to this effect, you can bend the pitch of your note by rocking the expression pedal up and down. As you rock the pedal forward, the note will bend either up or down depending on the pitch interval you have selected

ith the Amount Parameter. The Amount Parameter determines the possible bend ranges and includes: $1\flat$ (1 octave up), 7 (7 semitones above), 2 (2 semitones above), -2 (2 semitones below), $1\flat$ (1 octave down), and $\flat\flat$ (2 octaves down), 2^4 (2 semitones above to 4 semitones above), and 3^4 (3 semitones above to 4 semitones above).

Delay - Delay is often referred to as an echo. This is because it will record a short passage of your playing, and then repeat it a moment later. You can have it repeat the passage once, or several times. The GS30 offers three different types of delay, they are TA (tape delay), DL (delay), and PP (ping pong delay). The tape delay is typical of older delays that were actually using a tape to record and repeat. Tape delay settings deteriorate with each repeat. All other delay setting provides clear, concise repeats. The ping pong setting will “bounce” repeats from left to right when your GS30 is connected in stereo.

Reverb - Reverb simulates different acoustic environments. Reverb can make you sound as though you are laying in a big empty room, or a small tiled bathroom. It adds ambiance to your guitar by mimicking the characteristics of sound bouncing off of walls. The GS30 is capable of producing three different environments. They are PL (plate), HA (hall), and AR (arena). Plate reverb is the way recording studios used to produce reverb. They would attach a driver to a metal plate and then send the signal into the driver which would make the plate vibrate. Hall Reverb is intended to simulate a small acoustic echo chamber, and Arena is the largest environment.

Parameter Definitions

The following is a list of the Parameters available for editing and a description of how each Parameter will affect the sound of the corresponding effects.

Speed - The Speed control adjusts how fast the Chorus, Flanger, Phaser, Ring Modulator, Tremolo, Detuner, Enveloped Phase, or Enveloped Flange will sweep back and forth. It can be used to vary these effects between a fast shimmering type of sound, and a slow gradual sweeping. Speed ranges from 0 (slow) to 99 (fast).

Depth - The Depth adjusts the intensity of the Chorus, Flanger, Phaser, Tremolo, Ring Modulator, Pixellator, or Enveloped effects. Depth ranges from 0 (minimum intensity) to 99 (maximum intensity).

Amount - The Amount selects the interval of the Detune, Pitch Shift, or Pitch Bend effects. See the description of these effects for their Parameter ranges.

Delay Time - The Delay Time adjusts the length of time between repeats of the Delay. The Delay Time is variable in three ranges from 1 millisecond to 3 seconds. The ranges are as follows: 1 through 99 (1 millisecond to 99 milliseconds in one millisecond increments), 100 through 999 (100 milliseconds to 990 milliseconds in one millisecond increments), and 1.0 to 3.0 (1 second to 3 seconds in 100 millisecond increments). Note that the decimal point is what differentiates between the three ranges.

Regen/Fback - The Regeneration will adjust the number of times that the Delay will repeat the sound. It will also increase the amount of whooshing heard in the Flanger and Phaser. The Feedback/Regeneration ranges from 0 to 99.

Decay - The Decay adjusts the length of time the Reverb will be heard. This is perceived as how “big” of a room the Reverb effect is simulating. Decay ranges from 0 (smallest) to 99 (largest).

Level - The Level will adjust the overall strength of effects in the Preset. The Level ranges from 0 to 99.

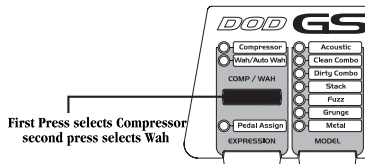
SECTION FIVE - Tutorial

Creating a Preset

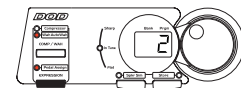
Suppose you want to create a Preset that has medium Compression, the Amp Modeling of a Stack with high Gain and boosted highs and lows on the EQ, a low Threshold setting on the Noise Gate, a slow medium Chorus, no delay, and a Room Reverb. Let's also suppose that you wanted the Expression Pedal to control a classic Wah. The steps outlined below will guide you through creating this Preset.

step 1. Adjust the Compression - Press the effect select button under the Compression group. The LED next to Compressor will begin to flash. The Display will show the current status of the Compressor. Since we want a medium compression setting, rotate the Data Wheel until the number 2 shows in the Display.

step 2. Select the Wah Type - Since the Wah effect is in the Compression section, press the select button under the Compression group again. The LED next to Wah will begin to flash. Rotate the Data Wheel until the display shows the number 1 (representing a classic wah).



tep 3. Assign the Expression Pedal to Wah - Press the Expression button. The LED next to Expression assign begins to flash. If the Expression Pedal is currently assigned to a Parameter, the assigned Parameter's LED will flash also. Rotate the Data Wheel until the LED next to Wah is flashing with the Expression Assign LED (this should correspond to a number 2 in the Display).

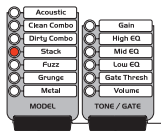


Press Expression and rotate Data Wheel until Display shows 2 indicating Wah

tep 4. Select the Amp/Guitar Model - Press the Model button. An LED next to the currently selected Amp Model will begin to flash. Continue to press the Model button until the LED next to “Stack” is lit. If the Amp/Guitar Modeling is bypassed (indicated by two dashes -- in the Display), rotate the Data Wheel until the Display shows 7.

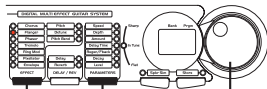
tep 5. Adjust the Tone/Gate Parameters - In this sample Preset, we wanted high gain, and boosted bass and treble. Press the button in the Tone/Gate column. The LED next to Gain will begin to flash. Rotate the Data Wheel until the Display shows 99. Press the Tone/Gate button again and the LED next to High EQ begins to flash. Rotate the Data Wheel until the Display shows 4. Press the Tone/Gate button again and the LED next to Mid EQ flashes. Rotate the Data Wheel until the Display shows 7. Press the Tone/Gate button again and the Low EQ LED will flash. Rotate the Data Wheel until the Display shows 5. Press the Tone/Gate button again and the Gate LED flashes. Rotate the Data Wheel until the Display shows 1. Press the Tone/Gate button one more time and the volume LED blinks. This parameter is a matter of personal taste, but since we have such a high Gain level, let's set this to about 75 by rotating the Data Wheel.

GS30



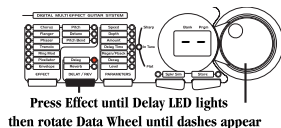
Select Stack as the Amp Model
then adjust Gain, Tone and Gate

Step 6 Select the Chorus Effect - Press the Effect button until the LED next to Chorus is flashing. If the Chorus is bypassed (indicated by two dashes -- in the Display), rotate the Data Wheel until the Display shows $\square\square$. You will notice that the Parameter LEDs next to the words “Speed,” “Depth,” and “Level” are now lit. This indicates that these three Parameters are associated with the Chorus, and you can adjust these parameters. Press the Parameter Edit button once and the Speed LED will begin to flash indicating that you are about to edit the Chorus Speed. The Display will show the current value for the Chorus Speed. Since our sample Preset calls for a low medium Chorus, use the Data Wheel to set the Speed value to 5. Press the Parameter button again and the Depth LED flashes. Rotate the Data Wheel until the Display shows 10. Press the Parameter button again and the Level LED flashes. Rotate the Data Wheel until the Display shows 50.

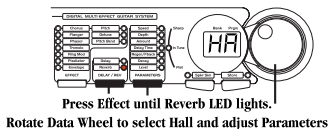


Press Effect until Chorus LED lights
then use Parameter button and Data Wheel

tep 7 Turn the Delay off - Our Sample Preset called for no Delay to be used. So, press the Delay/Reverb button and the LED next to Delay begins to flash. Rotate the Data Wheel counterclockwise until the Display shows two dashes -- indicating that it is bypassed.



tep 8 Select the Reverb - Our sample preset called for a Hall type Reverb. Press the Delay/Reverb button again and the Reverb LED will light. Rotate the Data Wheel until the display shows *HA* for Hall. The Parameter LEDs next to the words Decay and Level light indicating that these parameters are available for Reverb adjustment. Press the Parameter button and the Decay LED will flash. Rotate the Data Wheel until the Display shows *50*. Press the Parameter button again and the Level LED begins to flash. Rotate the Data Wheel until the Display shows *5* as the Reverb Level.



tep 9 Store the Preset - All that is left to do now is to store our new preset, otherwise the GS30 will forget the changes that we have made. Press the Store button once. The Store LED will begin to flash and the Display shows the Preset used before we edited our effects. Rotate the Data Wheel to select the User Preset location to store this new sound. Once the desired location is in the Display, press the Store button again and the changes will be saved.

Congratulations! You have successfully created a new Preset.

SECTION SIX - Other Stuff

Resetting the GS30

This function erases all of the user presets and copies the factory Presets into the User Presets.

Caution! This procedure will overwrite and reset **ALL** User Presets in the GS30 memory. Be sure you want to erase the memory and start fresh before continuing with this procedure.

- . Disconnect the power from the rear panel of the GS30.
- . Press and hold the Compressor, and Model select buttons simultaneously.
- . Reconnect the power while continuing to hold the Compressor and Model buttons until the display shows **⌂5** indicating it has reset.

After the reset has occurred, The GS30 will ask you to calibrate the Expression Pedal. The Display will read **⌂⌂**. Rock the expression pedal back to the toe up position and press the flashing number 1 footswitch. The display now reads **⌂⌄**. Rock the pedal forward to the toe down position and press the flashing number 3 footswitch. The expression pedal is now calibrated for use with all programs.

Calibrating the Expression Pedal

If the Expression Pedal ever has problems with controlling parameters through their full range, it may be necessary to re-calibrate it. Follow these steps for Expression Pedal calibration:

- . Disconnect the power from the GS30.
- . Press and hold the Expression button and reconnect the power. Continue holding the Expression button until the display shows **⌂⌂**, then release it.

- . When the display reads $\text{E} \cup$, rock the pedal back to the toe up position and press the flashing number 1 Footswitch.
- . The display now reads $\text{E} \cap$. Rock the Expression Pedal forward to the toe down position and press the flashing number 3 Footswitch.

he expression pedal is now calibrated for use with all programs.

an $\text{E} \cap$ shows in the Display, an error has occurred in the Pedal Calibration and the GS30 will repeat the calibration prompts asking you to repeat steps 3 and 4.

he Expression Pedal can be disabled by pressing and holding the Expression button down for a few seconds.

Maintenance and Service

he GS30 is a maintenance free device. There are no user serviceable parts inside of the unit. Opening the chassis will void your warranty. All service and repair must be performed by an authorized DOD service center. Should a problem arise with your GS30, contact your local DOD dealer for return/repair procedures.

SECTION SEVEN - Appendix

Warranty

- . The warranty registration card must be mailed within ten days after purchase date to validate the warranty of his DOD product.
- . DOD warrants this product when used solely within the U.S. to be free from defects and workmanship under normal use and service.
- . DOD Electronics liability under this warranty is limited to repairing or replacing defective materials that show evidence of defect, provided the product is returned through the original dealer, where all parts and labor will be covered up to a period of one (1) year. The company shall not be responsible for any consequential damage as a result of the products use in any circuit or assembly.
- . Proof of date of purchase is considered to be the burden of the consumer
- . DOD reserves the right to make changes in design or make improvements upon this product without incurring any obligation to install the same on **PRODUCTS PREVIOUSLY MANUFACTURED**.
- . The foregoing is in lieu of all other warranties, either expressed or implied, and DOD neither assumes nor authorizes any person to assume any obligation or liability in connection with the sale of this product. In no event shall DOD or its dealers be liable special or consequential damages or from any delay in the performance of this warranty due to causes beyond their control.

Specifications

- Input:** 1/4" unbalanced
- Input Impedance:** 500 k ohms
- Max Input Level:** 7.6 dBV
- Output:** 2 - 1/4" unbalanced
- Output Impedance:** 10 ohms
- Max Output Level:** 11 dBV
- Headphone:** 1/8" Stereo TRS
- Headphone Output Impedance:** 10 ohms
- AD:** 64 x oversampling, 24 bit delta sigma
- SP:** 24 bit
- Power Supply:** 10 volts AC, 780 mA (PS750)
- Power Consumption:** 5.5 watts
- Memory:** 30 user/30 factory
- Effects:** Compression, 7 Amp/Guitar Models, 3 band EQ, Noise Gate, Chorus, Flange, Tremolo, Phaser, Ring Modulator, Pixellator, Pitch Shift, Pitch Bend, Detune, Enveloped Flange, Enveloped Phase, Wah, AutoWah, Delay, reverb, Speaker Simulator.
- Simultaneous Effects:** up to 10
- Dimensions:** 17" L x 8" W x 2.75" H
- Weight:** 3.7 lbs.

GS30

DIGITAL MULTI-EFFECT
GUITAR SYSTEM

DOD Electronics Corporation
8760 S. Sandy Parkway
Sandy, Utah 84070
PH (801) 566-8800
FAX (801) 566-7005

International Distribution
8760 S. Sandy Parkway
Sandy, Utah 84070 USA
PH (801) 568-7642
FAX (801) 568-7638

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