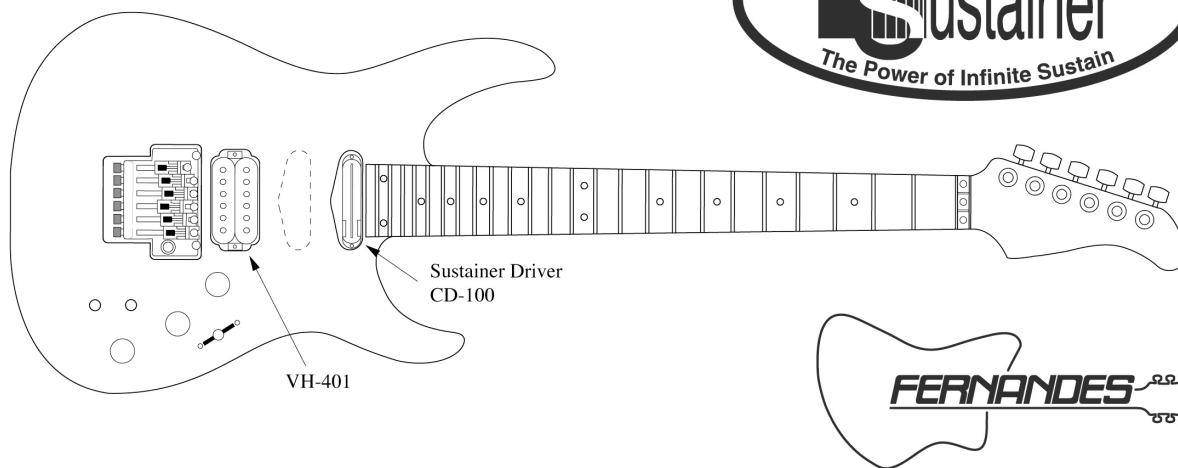


Fernandes Sustainer Installation Manual

For Sustainer FSK-401



THE POWER OF INFINITE SUSTAIN. TOTAL CONTROL OF SUSTAIN and HARMONIC FEEDBACK AT ANY VOLUME. ALL AT YOUR FINGERTIPS. THE FERNANDES SUSTAINER!"

Infinite Sustain at the flip of a switch you can hold any single note or chord as long as you want. The note doesn't die out or fade because the Fernandes Sustainer keeps the strings vibrating. Total Control of Harmonic Feedback at any volume, you can achieve the kind of feedback players only get at extreme volumes after the tedious and inconsistent process of finding the perfect angle and distance from their amplifier on stage. With a Fernandes Sustainer, all you have to do is switch your mode selector from Standard Sustain to Harmonic Sustain.

HOW THE FERNANDES SUSTAINER WORKS:

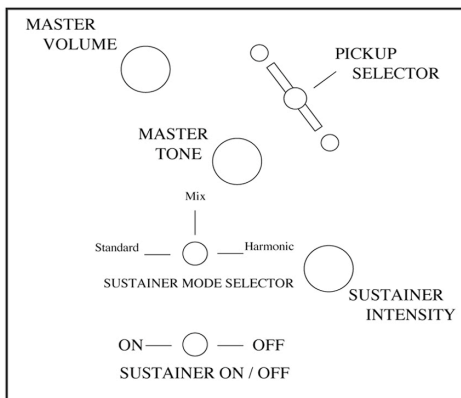
The patented Fernandes Sustainer is powered by a 9-volt alkaline battery, and works in conjunction with the Driver in the neck position, the bridge pickup and the Sustainer circuit board. To achieve infinite sustain the Driver projects magnetic pulses which continuously vibrate the strings of the guitar. The Harmonic mode: when the Harmonic mode is activated the Fernandes Sustainer alters the signal sent to the Driver causing the strings to vibrate the same way strings vibrate when they are hit by the sound waves of an amplifier played at extreme volumes. The result is controlled harmonic feedback without the need for excessive volume.

SUSTAINER MODES:

Standard Mode: In the Standard mode the Fernandes Sustainer will continuously vibrate the note.

Harmonic Mode: In the Harmonic mode the Fernandes Sustainer will create string vibration similar to the vibration that occurs when sound waves hit the strings at extreme volumes, generating the 5th harmonic of the note being played.

Mix Mode: The Mix mode is a blend of Standard and Harmonic sustain.



SUSTAINER CONTROLS:

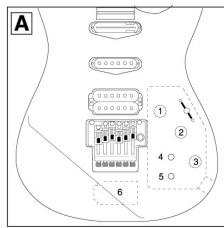
ON/OFF switch: (Black toggle switch)

The On position activates the Fernandes Sustainer and automatically selects the bridge pickup while deactivating the pickup selector and the neck pickup. The off position deactivates the Fernandes Sustainer, reactivates the pickup selector and allows the Sustainer driver to function as a normal neck pickup.

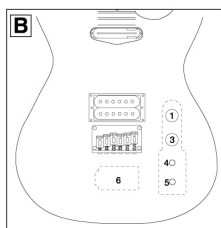
Sustainer Mode Selector:

Toggle Switch: On the 3-mode models, there are two mini toggle switches. The toggle switch nearest the Bridge Pickup is the mode selector. The UP position is the Standard mode, the MID position is the Mix mode, and the DOWN position is the Harmonic mode.

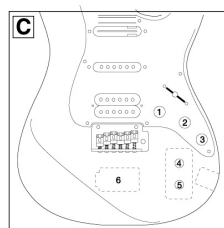
Sustainer intensity Control: The Sustainer Intensity Control knob, which looks like another volume knob, allows you to control the intensity of the sustainer. When the knob is at 0 there is no sustain



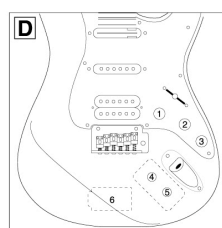
A. Modern style guitar with no pickguard.



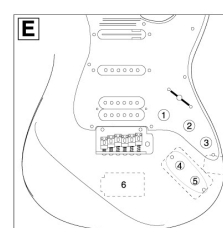
B. Vintage style guitar with no tone control.



C. Vintage style guitar with a side mount jack.



D. Vintage style guitar with a face mount jack (most common).



E. Vintage style guitar with the Sustainer controls mounted to a plate that replaces the jack.

Listing of Sustainer controls:

1. Master Volume.
2. Master Tone.
3. Sustainer Intensity.
4. Sustainer Mode Selector.
5. Sustainer On/Off Switch.
6. Battery Box

Fernandes Sustainer Installation Requirements:

1. The Fernandes Sustainer should only be installed by a professional Luthier who has the following skills:
 - A. The ability to read a meter and follow signal paths.
 - B. The ability to use a soldering iron at a professional level
 - C. The ability to use a router

Fernandes Sustainer Installation Procedures:

1. Select the location for the sustainer controls and battery box. Listed above are some possible locations for the Sustainer, these are just suggestions custom installations are also possible.

The Sustainer On / Off switch and the Sustainer Mode selector are attached to the Sustainer circuit board, this should be taken into account when selecting the location for these controls.

The Sustainer Intensity Control can replace the existing tone control or can be added to the existing controls of the instrument.

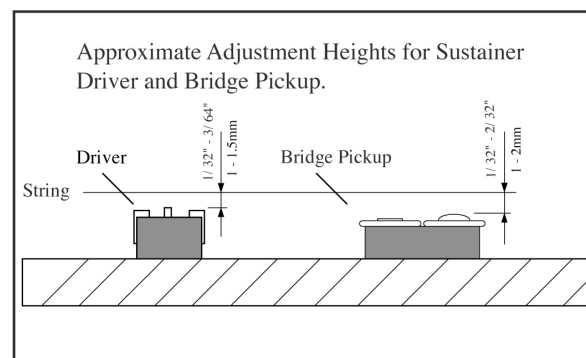
The Sustainer battery box position should be chosen last and should be placed in a location on the back of the guitar that will not interfere with the guitars function.

2. If the location you have chosen for the controls requires routing, disassemble the guitar and rout the cavity for the Sustainer.
3. Using the wiring diagram on the following page install the Sustainer in the guitar.
4. Follow the sustainer setup procedures on the following page to set up the Sustainer. The guitar the Sustainer is installed in must also be set up properly in order for the Sustainer to work properly.

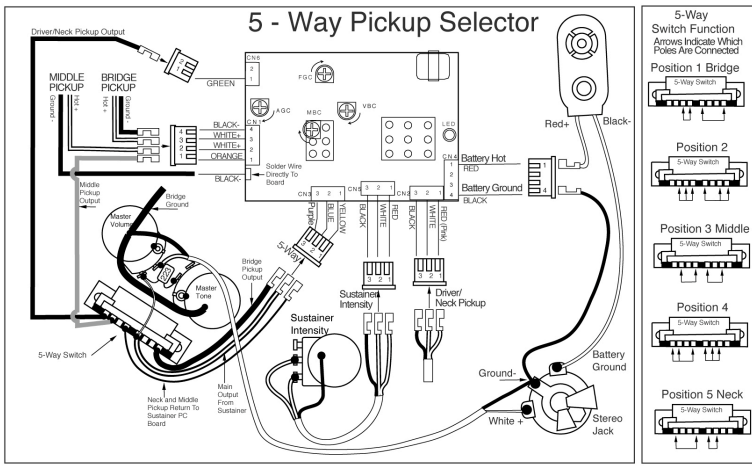
Sustainer Driver and Pickup Height Adjustment:

For the Sustainer to work properly it is necessary to set the driver and the bridge pickup to the approximate heights of- Driver- $1/32'' - 2/32''$ Bridge Pickup- $1/32'' - 1/8''$. Setting the Driver this close to the strings will cause the Driver to have more output (volume) than the middle and bridge pickup. The Driver output can be adjusted by the FGC trim pot on the Sustainer circuit board. Set the driver to match the output of the bridge and middle pickup.

Tips For Fernandes Sustainer Set-Up:

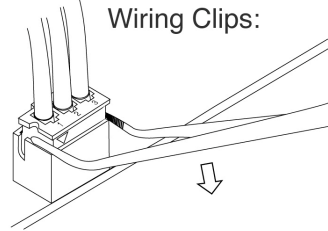


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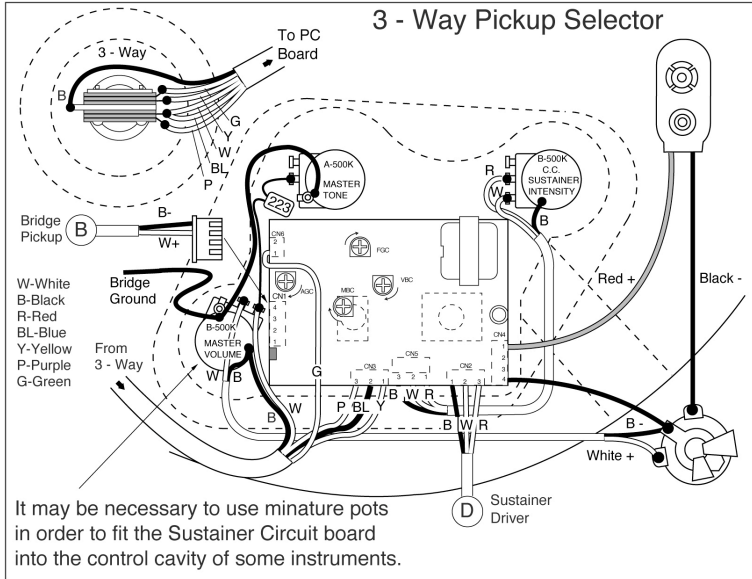


Description of trim pot functions:

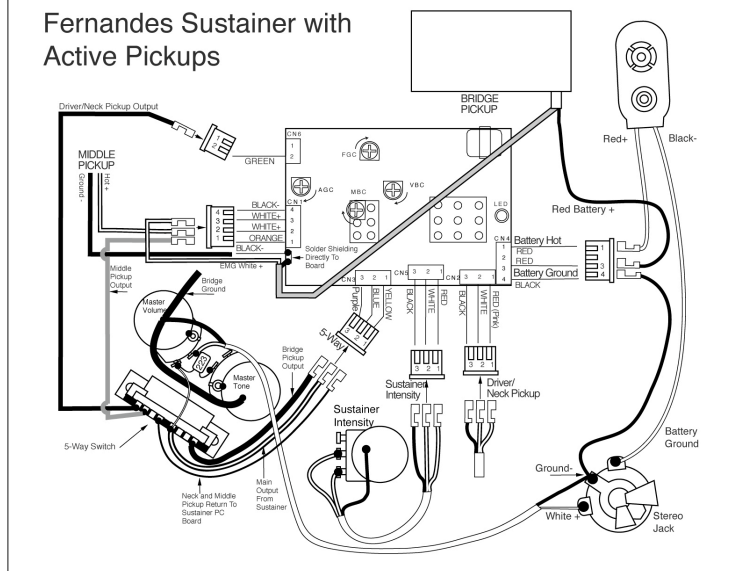
- Use a fine flat head screwdriver to adjust these pots
1. FGC-Output control for the neck pickup (driver). Set it to match the output of the middle or bridge pickup.
 2. VBC- (vibration control) Turn clockwise to increase the sustainers attack, this will also shorten battery life.
 3. AGC- Sustainer gain control. Set to 10 if possible, if you get feedback turn it counter-clockwise until the feedback stops.
 4. MBC-Balance control- usually set to 0. Balances the output between the standard and the harmonic mode.



Wiring clips: The wires for the Fernandes Sustainer are mounted to the PC board using wiring clips to make installation as quick and easy as possible. Installing and removing the clips must be done by grabbing the clip itself with either your fingers or a fine tool. Removing the clips by pulling the wires will damage the clips and the wires.



Pickups: The Fernandes Sustainer is guaranteed to work with the included Fernandes VH-401 pickup. The Sustainer will work with most pickups including Seymour Duncan, Dimarzio and EMG, however we can not guarantee it will work due to inconsistencies in pickup manufacturing. The Fernandes Sustainer requires that the Driver be in the neck position in order to function properly, it also requires that the bridge pickup be a humbucker. Full sized humbuckers work best, single coil sized humbuckers will also work but will not drive the strings with as much intensity as a full sized humbucker.



Seymour Duncan Pickups: For best results with Seymour Duncan use the following wiring- White hot, Red ground, connect the black and green. Standard Duncan wiring may also be used.

Dimarzio Pickups: To use the Fernandes Sustainer with Dimarzio pickups it is necessary to reverse the wiring as follows- Green hot, Red ground, connect the Black and White.

EMG: Follow the diagram to the left. Connect the Red battery wire to the board using the connector. Solder the ground wire directly to the board and connect the white wire to the board using the connector.

Tips For Fernandes Sustainer Set-Up:

- 1) Fresh alkaline battery ie; Duracell, Energizer, etc.
- 2) Adjust bridge pickup as close to the high E string as possible. The low E string doesn't need to be as close.
- 3) Adjust sustainer driver in the neck position as close as possible to the high E string. The low E doesn't need to be as close.
- 4) Turn VBC trim pot on the pc board inside of the guitar all the way up. (Be careful, they are fragile.) This will increase the drive of the sustainer. (See sustainer PC board diagram)
- 5) Turn sustainer intensity control on the face of the guitar all the way up.
- 6) Heavier string gauges tend to work better with the sustainer 10's will work better than 9's etc. This is because heavy strings have more mass for the magnetic field of the sustainer to grab. However most people who play 9's are able to make the sustainer work to their satisfaction.
- 7) If you change the bridge pickup you will probably have to readjust the AGC trim pot. Symptoms- High pitched squeal.

Sustainer trouble shooting: Each Fernandes Sustainer is thoroughly tested before shipping, problems are generally caused by errors in wiring or incorrect Sustainer adjustment.

- 1) The Sustainer sounds distorted- Replace the battery with a new alkaline battery. Duracell and Energizer usually work best.
- 2) The Sustainer produces a high pitch squealing sound- Adjust the AGC trim pot on the Sustainer circuit board.
- 3) The guitar produces a high pitch squealing sound when the Sustainer is off- Adjust the FGC trim pot on the Sustainer circuit board.
- 4) The sustainer is not working, no sound- Is the battery light on the Sustainer circuit board on. If no the battery is either dead or there is a problem with the battery connection.
- 5) The sustainer is weak- A. The bridge pickup or the driver are not close enough to the strings. B. The battery is weak or a non alkaline battery. C. The sustainer intensity control or the VBC trim pot are not turned up.
- 6) The battery light comes on but there is no sound- Recheck the wiring something is not connected properly.
- 7) One mode of the Sustainer works while the other mode does not- Rotate the bridge pickup 180 degrees or take the pickup apart and rotate the magnet 180 degrees.
- 8) The harmonic mode is in the up position on the mode selector switch- Reverse the hot and ground on the bridge pickup, leave the bare shielding wire connected to ground.

Warranty: To validate the warranty, the warranty registration card must be completed and returned to Fernandes Guitars International Inc. within ten days of purchase. The Fernandes Sustainer is warranted against defects in material and workmanship for 1 year. While under warranty, all replacement parts and labor will be provided without charge. This warranty is to the original purchaser and may not be transferred.

Return Policy: Should your Fernandes Sustainer require service, you must contact the Fernandes dealer you purchased the Fernandes Sustainer from. The Fernandes dealer will determine if the unit can be repaired at their location or if the Fernandes Sustainer needs to be returned to Fernandes International Inc. If it is determined that the unit must be returned to Fernandes the dealer must contact Fernandes for a Return Authorization number. Next, Securely pack the unit along with a copy of the original sales receipt and then write the Return Authorization number on the outside of the box. www.fernandesguitars.com

Fernandes Sustainer User List

Slash, Dave Kushner & Duff McKagan - **Velvet Revolver**
Eddie Van Halen - **Van Halen**
Steve Vai
Bryan May
The Edge - U2
Zakk Wylde – **Ozzy Osbourne - BLS**
Ed O'Brien & Jonny Greenwood – **Radiohead**
Neil Schon – **Journey**
Richie Sambora – **Bon Jovi**
Gary Pihl - **Boston**
Kerry King - **Slayer**
Steve Stevens - **Billy Idol**
Danny Lohner - **Nine Inch Nails**
Dan Palmer – **Death by Stereo**
Reeves Gabrels
Mike Scott - **New Power Generation**
Steve Lukather - **Toto**
Riggs – **Scum Of The Earth/Rob Zombie**
Mathias Jabbs - **Scorpions**
Kenny - **Type O Negative**
Robert Fripp & Adrian Belew - **King Crimson**
Andreas Kisser - **Sepultura**
Lee Ranaldo - **Sonic Youth**
David Lynch - **Film Director**
Mike Clark & Dean Pleasants - **Suicidal Tendencies**
Allain Johanes - **Chris Cornell Band/Eleven**
Steve Hackett
Rick Nielsen – **Cheap Trick**
Walter Becker – **Steely Dan**
Daniel Ash - **Love & Rockets/Bauhaus**
Davey Johnstone - **Elton John Band**
Paul Leary - **Butthole Surfers**
Mike Post - **Producer**
Steve Hunter
Joe Baresi- **Producer**
Chan Kinchla - **Blues Traveler**
Terry Lee Bolton
Bruce Rickerd - **Cirque du Soleil**
Andres Jaramillo - **Agony**
Lupus - **Bloodhound Gang**

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