

## **Silverado Special**

### **ELECTRONIC SPECIFICATIONS**

Note: All measurements were taken with a line voltage of 120 VAC  
All noise specifications are "unweighted."

All voltages and watts are "RMS."

All measurements taken with tone controls set flat, Aural Enhancer at minimum  
POWER (minimum)

350 Watts @ 4 Ohms

450 Watts @ 2 Ohms

Note: Internal speaker impedance is 4 ohms.

**FREQUENCY RESPONSE** (Power Amplifier): -3dB @ 20Hz and 40KHz

**SENSITIVITY** \*(full output under clipping, 8 ohms load, 100 Hz)

Passive Input Jack: 38 millivolts

Active Input Jack: 160 millivolts

Power Amplifier (Effects Return Jack "in"): 1.5 volts

\*With limiter circuit defeated.

### **INPUT IMPEDANCE**

Passive/Active Input: 800K Ohms

Active Input: 60K Ohms

Effects Return: 27K Ohms

### **OUTPUT IMPEDANCE**

Effects Send: 100 Ohms

Tuner Send: 100 Ohms

XLR Balanced Out: 750 Ohms

**SIGNAL TO NOISE RATIO:** -72 dB (<10 millivolts typical)

**EQUIVALENT INPUT NOISE:** 9 microvolts

**WEIGHT:** 90 lbs.

**SIZE:** 22.5"W x 28"H x 18"D

### **SPEAKER ENCLOSURE SPECIFICATIONS**

**POWER HANDLING:** 500 watts RMS

**IMPEDANCE:** 4 Ohms

### **SPEAKER COMPLIMENT**

Two 12" custom-designed SWR drivers

One Foster Horn

Front Ported Enclosure

### **GENERAL INFORMATION AND DESCRIPTION**

The Silverado Special Integrated Bass System from SWR Sound Corporation was designed for the player who prefers a straightforward, no-frills preamp combined with a power amp and speaker system capable of delivering enough power and headroom for most live applications.

The Silverado Special maintains the same quality components and materials found in all SWR products and is assembled by hand at our factory in Sun Valley, California.

The two preamp gain stages utilize a specially selected 12AX7 preamp tube. The tone controls incorporate I.C.'s and the power amp is designed with very high quality bi-polar devices. Each type of device was chosen for its performance and reliability in the application used. Aluminum is used for the chassis because of its good electrical and thermal characteristics and is much lighter than commonly used cold rolled steel. All primary electrical components are U.L. approved and we use Belden Cable for all shielded wire.

The speaker cabinet is constructed of 5/8" plywood and uses interlocking dado and rabbet joints with heavy duty internal bracing. The speaker configuration features two SWR 12" speakers and an inductive type Piezo tweeter.

Everybody at SWR sincerely hopes that the purchase of our product adds to the enjoyment of your playing and that it lives up to all your expectations and more!

## **FRONT PANEL FEATURES**

### **BALANCED XLR OUTPUT**

The Balanced XLR Out is a true balanced output and serves two functions. In the "Direct" position, the Balanced Out serves as a tube direct box and can be used for recording or patching into a house P.A. System. No controls on the front or back panel affect the signal appearing at the XLR connector except the "XLR Pad." In the "Line" position, all controls on the front and rear panels affect the signal appearing at the XLR connector with the exception of the Master Volume. The "Line" position can be used for recording directly into a tape machine as well as going directly to the studio board. An external power amplifier with a balanced input can be driven in the "Line" mode.

Pin out for the XLR connector are as follows:

Pin 1 = Ground Pin 2 = + Pin 3 = - (American Standard)

### **XLR PAD AND GROUND LIFT**

The XLR pad adjusts the level (volume) appearing at the XLR connector directly below in either the Line or Direct mode. Volume increases as the control is turned clockwise.

If you are in the LINE position and change the Gain control on the front panel, the level will also change at the balanced output. You may readjust the XLR pad if necessary without affecting any other function.

A GROUND LIFT is provided for the record out XLR socket. It is built into the XLR Pad. With the knob on the XLR pad in the "in" position, the ground to pin one is engaged. Pulling the knob to the out or "ground lift" position will interrupt or defeat the ground on pin 1.

If a persistent hum exists after trying both positions of the ground lift, there is probably a mis-wire or bad ground in the feed lines to the board or console or a dirty or miswired A/C socket. For a few dollars, you can buy an AC wall socket tester. A light comes on if the AC socket has been wired correctly. We recommend everyone having one of these if they value their equipment and life.

**WARNING:** The phantom power (generally a 48V supply) found in some mixing consoles should not be applied to this output. Doing so may damage the internal circuitry.

### **EFFECTS LOOP**

THE EFFECTS LOOP MUST BE USED IN CONJUNCTION WITH THE BLEND CONTROL ON THE FRONT PANEL. WHEN THE BLEND CONTROL IS IN THE "DRY" POSITION, NO EFFECTS WILL BE HEARD.

The Effects Loop should accept any effect such as a chorus, etc. It is designed as a "side chain" function and works exactly like that of studio consoles. Many effects on the market have input level adjustments. For instance, some units have a switch that you can set for either -20 dB or +4 dB. In all cases, these should be set for 0 dB (if available) or +4 dB. The level going to your effect is controlled by the Gain control on the front panel.

Use of the effects loop should greatly reduce the noise generated by effects units (as compared to using the effect between your instrument and the input jack). This is because the loop is after the preamp gain stages.

### **SEND JACK**

Run a shielded patch cord from the SEND jack to the INPUT of your effects unit. Output impedance of the send jack is 100 ohms. This jack can be used as a line level output to use in conjunction with a slave power amp such as SWR's Stereo 800. It may also be used as an unbalanced record out.

### **RECEIVE JACK**

Run a shielded patch cord from the RECEIVE jack to the OUTPUT jack of your effects unit.

All patch cords used with effects should be as short as possible and should be routed as directly as possible. Running patch cables over the top of the Silverado (as with any amplifier) could induce hum in the cables.

One unique feature of the receive jack is the ability to practice a part along with pre-recorded music. To accomplish this, insert a tape recorder or other sound source into the Receive jack (make sure it is a MONO source). Using the Blend control, adjust the level of recorded music from the Receive to the "live" sound of your instrument. The mixed sound will be heard through your speakers. Besides pre-recorded music, this is an excellent way to practice along with drum machines.

Input impedance of the Receive jack is 27K Ohms minimum.

**NOTE:** Inserting a plug into the Receive jack activates the Effects Blend control. The control receives this command through the ground created by the phone plug making contact with the jack. The plug must be a mono plug (tip and ground). If you have a stereo plug only, tie the ring and the ground together.

### **TUNER INPUT**

The To Tuner Input allows the user to plug their instrument tuner into this jack and "tune up" without having to unplug and go back and forth from amp to tuner. This feature is totally isolated from the rest of the preamp and will function regardless of the settings on the front panel. Being on a side chain (isolated) also avoids loading down of the instrument

causing a loss in dynamic range.

To use this feature, plug in a shielded patch cord from the To Tuner Input to the input jack on your tuner. Turn the amplifier on and you're ready to go. If you do not wish to monitor your sound during the tuning process, you may turn down the Master Volume.

### **PASSIVE/ACTIVE INPUT JACK**

A "passive" instrument has no built in preamp and does not use a battery. On the other hand, an "active" bass utilizes a battery operated preamp for gain, tone controls, or both. This input has 14db more gain than the Active.

Although labeled "Passive," the Passive Input will work with all instruments having a maximum output of less than 1 volt RMS. Some pickups such as EMG, Bartolini, etc., employ batteries for operation and will work perfectly using the Passive input. Instruments made by Pedulla, Tobias, Sadowsky, Modulus Graphite, etc., have active electronics and should also be operated in the Passive input.

Generally speaking, try the Passive input first. If you hear a small amount of distortion and the preamp clip LED is not activated, try using the Active input jack. If the Active input does not correct any audible distortion, check the battery in your bass.

NOTE: If you would like to overdrive the first TUBE stage, this can be accomplished by using an external preamp between your instrument and the Passive input. To obtain optimum sound when trying this, make sure the preamp clip LED is not activated. If this occurs, turn down your Gain control until the LED does not light. The first preamp tube stage is NOT monitored by the preamp clip circuit for this reason.

### **ACTIVE INPUT**

The Active input jack should be used with instruments having a built-in (on board) preamp or other sound sources that will produce output levels exceeding 1 volt RMS. Known basses that should use the Active input are the Kubicki X-Factor and some older Ovation electrics. Some really "hot" pickups installed in your instrument may find the Active input more compatible. The best judge is your own ears.

If you are using a KEYBOARD or BASS PEDAL with the Silverado Special, we have found the best choice to be the Active input.

NOTE: Using the Active input with passive basses (active instruments will always employ a battery) may result in a loss of high end transients. Players who roll off their high end starting at about 2KHz, or prefer a "darker" sound, may find this input more to their liking. If you hear some distortion with your active bass and are using the Active input, CHECK YOUR BATTERY!! Also, make sure the preamp clip LED indicator is not lighting. This will save you and a service technician a lot of aggravation.

### **GAIN CONTROL**

The Gain control adjusts the volume of the preamp section. Since the Gain control is similar to a "pad," a small amount of signal will be heard even with the Gain control rotated fully counter-clockwise (with the Master Volume up). After all EQ settings and the Aural Enhancer are set, the Gain control should be raised until the preamp clip LED barely flashes when your loudest note is struck. This will insure maximum signal to noise ratio and prevent unwanted clipping of the preamp section. After this is achieved, use the Master Volume to obtain the desired overall volume level.

NOTE: The Gain can serve as an EFFECTS SEND LEVEL ADJUSTMENT. If your effect is being overdriven, turn down the Gain control and readjust your Master volume for correct overall loudness.

### **PREAMP CLIP LED**

The preamp clip LED will light whenever the preamp, tone section or output buffer reach clipping (run out of headroom). This function does NOT monitor the first tube stage of the Passive input. See that section for more info.

In the event the clip indicator lights, turn down the Gain control. Since this circuit monitors the tone controls, boosting any one of them can cause the clip LED to activate. Once again, you may leave the tone control at its desired level, but turn the Gain control down further.

### **AURAL ENHANCER**

The Aural Enhancer is a passive R/C network that alters the frequency response throughout the bass spectrum. This pre-shaping is "blended" into the original signal via the Aural Enhancer Control. Exact frequencies affected are dependent on the characteristics of the instrument used. The Aural Enhancer was developed to help bring out the fundamental notes of the bass guitar, reduce certain frequencies that help mask the fundamentals, and enhance the high end transients. The resulting frequency response is similar to that used for recording the bass in the studio. This effect becomes more radical as the control is turned toward maximum, resulting in a more "transparent" sound that is especially noticeable with a slap style technique of playing.

### **ACTIVE TONE CONTROL SECTION**

#### **BASS CONTROL**

The Bass Control cuts or boosts the lower or bass frequencies. Starting at mid-center click-position, turning the control counter clockwise cuts the bass response and turning the control clockwise boosts the bass response. The Bass Control

employs a shelving type circuit and boosts or cuts the bass response + or - 15dB from about 30 Hz to 100 Hz.

### **MID RANGE SECTION**

#### **LEVEL CONTROL**

The Level control cuts or boosts the frequency set by the Frequency control. Starting at mid-position, turning the Level control counter clockwise cuts the desired tone. Turning the Level control clockwise boosts the desired tone (set by the Frequency control).

WHEN THE LEVEL CONTROL IS SET AT MID (CENTER CLICK) POSITION, TURNING THE FREQUENCY CONTROL WILL HAVE NO AFFECT ON THE SOUND.

It is suggested that to find the midrange area you are looking for:

1. Adjust the LEVEL control to the full boost or cut position.
2. Rotate the Frequency control until the desired area you wish to cut or boost is found.
3. Adjust the Level control to the desired amount of cut or boost.

#### **FREQUENCY CONTROL**

The Frequency control sets the area that is to be cut or boosted by the Level function. If the Level control is set at mid-position, turning the Frequency knob will have NO affect.

Some hints: If you need to "cut through" the band a little more, try boosting 200 to 400 Hz. If you like a more transparent sound, try cutting 800 cycles. The midrange area is especially useful in controlling fretless basses and their inherent qualities.

#### **TREBLE CONTROL**

The Treble control is a shelving type tone control that cuts or boosts the high notes and their octaves. Starting from mid position, turning the control counter clockwise cuts the highs while turning the control clockwise boosts the treble region. The Treble Control employs a shelving type circuit and boosts or cuts the Treble response + or - 15dB from about 2KHz to 14KHz.

#### **EFFECTS BLEND CONTROL**

This function "blends" the signal sent from your bass, etc., with that coming from your effects unit. With the Effects Blend full counter clockwise, no signal from your effects will be heard (dry). As you turn this control clockwise, more of the effect can be heard in the overall sound. When the Blend knob is full clockwise (wet), no true or unaffected signal is heard other than what your effects unit provides.

If your effects unit has a similar control, adjust it to the FULL "WET" POSITION. This will avoid any possible phasing problems.

The Blend circuit is similar to that used on recording consoles with the effects loop on a "side chain" to the normal circuit. Unless the control is set to the full wet position, you will always get the full sound of your instrument AND get the diversity an effects unit offers. This circuit is also effective in reducing noise generated by effects units because it is located after the gain stages in the preamp.

The Effects Blend functions only when the EFFECTS LOOP IS BEING USED. It is activated when a 1/4" phone plug is inserted into the Effects Receive jack. See the "Effects Loop" section for more information.

#### **PULL LIMITER DEFEAT SWITCH**

Pulling the Effects Blend knob out defeats the built in Limiter circuit. Pushing the knob back in engages the Limiter circuit. The Limiter circuit's threshold is factory set so that the user can get maximum overall apparent volume without overdriving the power amplifier or internal speakers. It is situated after the Master Volume and before the input to the power amplifier. Therefore, the circuit is driven by the Master Volume.

As a "rule of thumb", having set the Gain control as per the instructions given in the Gain Control section, the Limiter circuit will generally not be needed until the Master Volume is raised past the 10 o'clock position. If you need more volume, engage the Limiter circuit and raise the Master Volume to the desired overall volume level.

#### **MASTER VOLUME**

The Master Volume adjusts the level being sent to the power amplifier and the Limiter circuit (when engaged) in your Silverado Special. Therefore, the Master Volume controls the overall volume of the product. It DOES NOT affect the level of the record XLR output in the "line" position.

Losses caused by effects units can be recovered by increasing the Master Volume.

#### **LIMITER ACTIVE LED**

With the Limiter engaged (Blend Control knob in the "In" position), the Limiter Active LED will light when the threshold of the circuit is reached. The threshold is factory set for optimum performance. For more information see the "Limiter Defeat Switch" section above.

## **POWER ON LED**

Moving the On/Off switch located on the back panel to the "On" position activates the electronics as indicated by the blue LED being lit.

## **REAR PANEL FEATURES**

### **SPEAKER FUSE**

The speaker fuse is provided to protect your speakers in the unlikely event of a power amp failure or to protect your power amplifier from incorrect speaker impedances or hookups. Size and rating of the fuse is 10 amp, fast blow. Do not defeat the purpose of this feature by using a higher rated fuse as it could void your warranty and further damage your amp. The fuse can open as a result of a fault in the speaker cable, the speakers themselves, or the power amp being sent well into clipping. With this in mind, it is wise to carry extra fuses at all times.

### **A/C OR MAINS FUSE**

This fuse is provided to protect the internal electronics against power surges, etc. It also protects the unit against itself should one of the internal components fail. If this fuse should open, replace it with the same type of fuse and rating. DO NOT DEFEAT THE PURPOSE OF THIS FEATURE BY USING A FUSE OF A HIGHER VALUE. IT WILL ONLY VOID YOUR WARRANTY!

Proper size of the AC fuse for all countries is 3AG. Proper rating of the fuse is as follows:

Japan: 8 amp slo-blo

United States: 7 amp slo-blo

Europe (240V): 4 amp slo-blo

### **POWER ON/OFF SWITCH**

Moving this switch to the ON (far right) position activates the Silverado Special as indicated by the blue LED lighting on the front panel. Turn the unit OFF (far left position) after use and in between sets to allow the unit to cool.

## **THREE-WAY SELECTOR SWITCH**

### **FULL RANGE**

In the Full Range or far left position, the switch activates the internal speaker system. This includes the two 12" speakers and high end tweeter. This also sends a signal to the extension speaker jack should you wish to use an additional speaker cabinet.

### **TWEETER OFF**

The Tweeter Off position does just that, eliminates the signal going to the tweeter. If you are getting too many highs, too much "finger" noise or like a "darker" sound, this position is for you. This function does NOT affect the extension speaker jack.

### **HEADPHONES ONLY**

In the Headphones Only or middle position, the switch disconnects the internal speaker system and any extension speaker you may be using. Using STEREO HEADPHONES you are now able to tune up silently or practice without disturbing your neighbors.

### **HEADPHONES JACK**

This Jack accepts any set of STEREO headphones. The Three Way Selector Switch should be turned to the "headphones only" position. The headphone volume is adjusted by the Master Volume. We suggest you start with the Master Volume off and slowly raise the volume to your desired level. The jack may be rewired for mono headphones if so desired. Please contact the factory for details.

### **EXTENSION SPEAKER JACK**

The Extension Speaker Jack provides an outlet to attach an additional speaker cabinet to your system. The total minimum impedance that can be driven by the power amplifier section of the Silverado Special is 2 Ohms. This means that you can connect an extension speaker with an impedance of 4 OHMS OR GREATER to this jack.  
ALWAYS USE SPEAKER CABLE MADE OF 18 GAUGE WIRE OR HEAVIER (THE HEAVIER THE WIRE, THE LOWER THE GAUGE). NEVER USE SHIELDED CABLE OR CABLE INTENDED FOR USE WITH YOUR INSTRUMENT TO HOOK UP YOUR CABINETS.

### **AC CORD RECEPTACLE**

This receptacle accepts a standard A/C power cable (supplied with the Silverado Special in the United States) used with almost all current musical, professional and household electronic devices. We recommend great care when packing up. If your unit is not in a rack case, put the cable in your instrument or accessory case. If it does become misplaced, replacement will be easy at almost any appliance store, supermarket or the like. PLEASE NOTE: the rating for this cable is 3 conductor, 10 amperes minimum. Look for this rating on the cable. Make sure the cable is plugged in all the way to both the amp and the wall socket.

#### **INTERNAL FEATURES**

##### **VACUUM TUBE (VALVE)**

As stated earlier, SWR installs a specially selected 12AX7 dual triode in every Silverado Special. If this tube needs replacing, we recommend you replace it with a similar high quality product. This tube will need replacing only if it becomes noisy or microphonic (sounds like glass tinkling in the background of certain notes), or completely fails causing no signal.