Carvin

SC2000 Solid State

musical instrument

amplifier

owner's manual

CONGRATULATIONS! You have just purchased a Carvin product, the best value on the market today. Before operating, we suggest you read this manual through completely, to acquaint yourself with all the functions and features at your disposal.

Your Carvin equipment has been carefully packed in rugged corrugated boxes with corner blocks to insure the best possible shipping conditions. Remove the equipment carefully from the packing container.

At this time, the equipment should be visually inspected for damage caused by shipping abuse. If any damage is located, the transportation company should be notified immediately, and a claim made against the damages. A copy should also be sent to Carvin.

By filling in the form below, you will have immediate access to the model and serial numbers of your equipment. Your warranty cards, while containing this same information, should be filed in a safe place (after mailing top half in to Carvin).

Model No.		Description	Serial No.	Date Rec.
TR-1000	Bass	1x15 Speaker System	2281, 2282	11-11-76
SC2000	Bass	Amplifier	Z-57338	11-11-76

SETTING UP

Remove any items in the rear of the amplifier, including speaker cords, packing paper, and footswitch, if included. Uncoil the AC line cord and plug into a standard, 3-conductor grounded-type outlet. (Warning: Carvin does not recommend the use of 2-conductor non-grounding outlets, due to the possibility of electrical shock. If such outlets must be used, GROUND Switch should be set for minimum hum). Plug speaker system into either SPEAKER Output jack. Depress the white rocker switch marked POWER, and note that the red pilot light is on. The amplifier is now ready for use.

WARRANTY

Your Carvin Solid State Amplifier is protected by a solid Five Year Warranty. If, at any time during the first five years you own this equipment, anything should go wrong, Carvin will service it free of charge.

While Carvin suggests you utilize the specialized technicians of the Carvin Service Dept., non-factory repairs will not void the warranty, although all charges for such repairs must be paid for by the customer. Furthermore, Carvin will supply amp parts (at no charge) upon receipt of defective parts. Naturally, any damages caused by improper outside repairs will not be covered by the warranty.

Carvin speaker systems and related components are covered for a period of 1 year, with the exception of Altec, JBL and Electro Voice components, which are guaranteed for 5 years by the manufacturers.

All above warranties are extended to the original purchaser only, by the Carvin Music and Sound Mfg. Company, and do not cover failures caused by misuse or natural disasters.

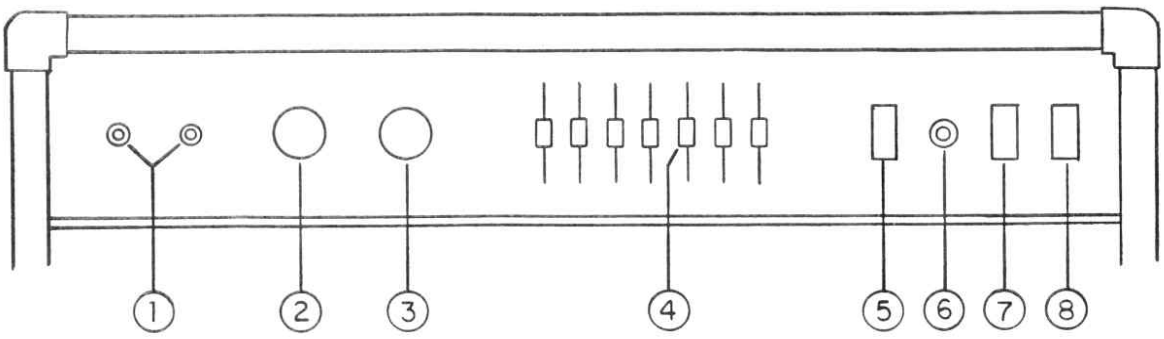
This Carvin Product is offered with a 10 day free trial period to allow the purchaser to evaluate its performance. The following two steps should be taken immediately *after* a decision to keep the unit is made.

1.) Fill out the Warranty Card and mail the top half back to Carvin. Note that the Warranty is VOID if not returned within 15 days of receiving the equipment. The bottom half of the card is your copy and should be filed in a safe place. If the need for factory servicing should ever arise, you should *not* send this copy in, as the top half will be maintained on file at Carvin.

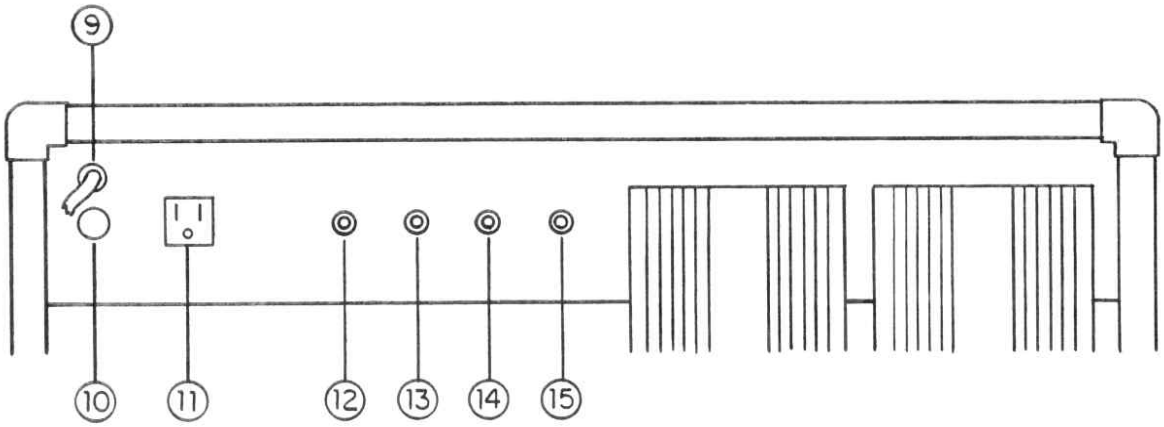
2.) Obtain the use of an "electric pencil" or similar engraving tool, and etch your name into the rear chassis. This will serve as a more permanant form of identification than the serial number tag, and will facilitate recovery in the event of theft.

SPECIFICATIONS

POWER OUTPUT	125 Watts RMS minimum at 4 Ohms—85 Watts RMS at 8 Ohms. (Can be loaded to 2 Ohms, but with no power increase).
HARMONIC AND INTER-MODULATION DISTORTION	Less than 0.5% at 125 Watts RMS.
S/N RATIO	Better than 70 dB.
SPEAKER IMPEDANCE	2 through 16 Ohms. Speaker jacks are wired in parallel.
FREQUENCY RESPONSE	20 Hz to 20,000 Hz ± 1 dB.
SENSITIVITY	10 mv for full output.
GRAPHIC EQUALIZER	Active, 7-Band.
BAND WIDTH	6 One-Octave Filters 1 Multi-Octave Filter (High Frequency Band)
CENTER FREQUENCIES	60, 120, 250, 500, 1K, 2K, 8K Hz
FREQUENCY RESPONSE	15 Hz to 20K Hz ±2 dB (All sliders at mid-position)
NOISE INSERTION	Less than 1dB
FILTER DESIGN	Active, R-C tuned
DISTORTION	Less than 0.05% (THD and IM)
POWER TRANSISTORS	4 Premium RCA 150 Watt Transistors mounted on 320 square inches of large finned Aluminum Heat Sinks for full, continuous Power output without external fans.
VOLTAGE REQUIREMENTS	120 VAC 50-60 Hz.



1. INPUT JACKS
2. NORMAL MASTER VOLUME
3. SUSTAIN MASTER VOLUME
4. 7-BAND GRAPHIC EQUALIZER
5. POWER DRIVE
6. PILOT LIGHT
7. GROUND
8. POWER SWITCH



9. LINE CORD
10. FUSE-HOLDER
11. ACCESSORY AC OUTLET
12. & 13. SPEAKER OUTPUTS
!4. PREAMP IN/OUT
15. SUSTAIN FOOTSWITCH JACK

FRONT CHASSIS

INPUT JACKS

Your Carvin amp features two input jacks. The top jack, labelled HI has greater gain than the bottom jack (LO). Normally, the HI jack will be used. However, if you find the amplifier consistently too loud, then use the LO jack. (Note: The amount of sustain is somewhat lower when using the LO jack).

NORMAL MASTER VOLUME

As this control is advanced, the volume of clean (normal) sound increases. When a clean sound is desired, the SUSTAIN MASTER VOLUME should be fully off (counterclockwise).

SUSTAIN MASTER VOLUME

As this control is advanced, the volume of distorted sound (similar to Fuzz) is increased. The actual degree of distortion, as well as the length of the sustain, is determined by the input level provided by your instrument.

For example, using a guitar, maximum sustain is produced with the guitar volume(s) on full. Less pronounced distortion results from turning the volume of the guitar down. In fact, it is possible to obtain a clean (non-distorted) sound from the SUSTAIN MASTER VOLUME by turning the instrument's volume way down. Maximum distortion and sustain can be produced only when the instrument's volume control is fully on. The SUSTAIN MASTER VOLUME regulates the *volume* of the distortion, not the degree.

Note: Both NORMAL and SUSTAIN MASTER VOLUMES can be in use at the same time for increased drive. However, maximum effect is obtained by using only one at a time.

SEVEN-BAND GRAPHIC EQUALIZER

Of all the features offered, the Carvin Seven-Band Graphic Equalizer makes the most important single contribution to your unit's flexibility. To help understand the Graphic Equalizer, consider that the ordinary bass and treble system is actually a two-band equalizer.

Such a system divides the entire audio spectrum (everything you can hear) into two sections. The lower frequencies are called "Bass", and the higher frequencies are called "Treble". Each section is given its own passive volume control, so the sound level of one section can be changed without affecting the other section. By "turning up the bass", you are simply making the lower (bass) frequencies louder, without changing the higher (treble) frequencies.

The Carvin 7-BAND GRAPHIC EQUALIZER divides the audio spectrum into seven separate sections, or bands. Obviously, each band covers a smaller area of frequencies than the bass/treble system. Specifically, each of the first six bands covers one-octave of sound. What this means is a very precise control of the "frequency-response", or tonal characteristics, of your amplifier.

Using the slider-type controls against the grid of white lines forms a simple graph of the amplifier's frequency response (hence the term GRAPHIC). When all the sliders are positioned in the middle, the graph shows a straight line, representing a "flat" frequency response. This means that no tones are boosted or cut, so the sound is natural, and is exactly what the original instrument is producing.

By raising any one of the slider controls, that band of frequencies gets louder, while the other frequencies remain the same. Likewise, lowering any slider makes that band quieter.

All of the slider controls may be set at maximum, which will provide a higher output volume. However, adequate volume is always obtainable through the volume control, and the flattest response is available when all the sliders are set at the mid-position.

Rather than labelling the bands "Deep Bass," "Middle Bass," "Hi Bass," etc, the sliders are identified by the band they control. The center-frequencies (in Hz, or cycles-per-second) are printed under each slider, rather than the whole band. The full frequencies covered by each band are listed below. Note that the highest filter covers a broader range. This is because the highest notes of most electronic instruments are well below 3,000 Hz (3K Hz). The guitar's highest note, for example, is about 1.24K Hz (1,240 Hz). The highest band covers all the harmonic overtones, leaving six bands to provide maximum control of your instrument's fundamental notes.

CENTER FREQUENCY	FREQUENCIES COVERED BY BAND
60 Hz	30 to 90 Hz
120 Hz	90 to 180 Hz
250 Hz	180 to 375 Hz
500 Hz	375 to 750 Hz
1K Hz	750 to 1500 Hz
2K Hz	1500 to 3000 Hz
8K Hz	3K to 18K Hz

An excellent way to acquaint yourself with the 7-BAND GRAPHIC EQUALIZER is to set up the amp with all of the sliders at minimum (the lowest position). While playing, raise one slider separately to hear the sound of that particular band, then return it to minimum. Repeat that with all seven sliders. Next, set the amplifier for a flat response (all sliders at mid-position). Try boosting one band by raising its slider to maximum. Then cut that same band by lowering the slider to minimum. Return the slider to its mid-position and repeat with the other six bands.

You will soon discover that a variety of different sounds are available from this one amplifier. Certain settings will produce sounds that you will especially like. The graphic design will make remembering those settings very easy.

POWER DRIVE

This switch alters the characteristics of the amplifier's power-output section. The result is an instantaneous increase in power output.

PILOT LIGHT

The pilot light provides a visual indication that the amplifier is on.

GROUND

When your amplifier is plugged into a properly wired, three-conductor grounding outlet, this switch will have no effect. However, if an adaptor is used to match the older, two-conductor (non-grounding) type of outlet, the switch should be set for minimum hum and/or string "clicks".

POWER SWITCH

This switch turns the amplifier on. All volume settings should be at minimum when power is applied.

REAR CHASSIS

LINE CORD

All Carvin Equipment is supplied with three-conductor line cords ending in grounding-type plugs. This arrangement will greatly reduce the possibility of electrical shock, provided the equipment is used with three-conductor grounding-type outlets, and provided these outlets have been properly wired. If, at any time, electrical shock is experienced, disconnect the amplifier and have a qualified technician correct the trouble.

Carvin does not recommend the use of the older, two-conductor non-grounding type of outlets, as there is an increased danger of electrical shock. If use of this type of outlet is unavoidable, setting the GROUND switch for minimum hum will also minimize the possibility of such shock.

FUSE HOLDER

Access to the fuse can be gained by pushing the fuse holder inwards, then turning counterclockwise. The type of fuse to be used is printed just below the fuse-holder. Should the fuse ever fail, replace it with an identical fuse (an extra fuse is provided). If the second fuse fails, then a problem is indicated, and the amp should be serviced. To prevent excessive damage to the amplifier, NEVER USE A FUSE WITH A HIGHER RATING.

ACCESSORY AC OUTLET

A three-conductor grounded-type of AC output is provided on the rear of the chassis to power additional equipment. This outlet is *not* switched, but remains on always, allowing individual equipment to be powered independently. Note the wattage rating of 400 Watts, and never connect equipment that draws more than this.

SPEAKER OUTPUTS

Two ¼" phone jacks, wired in parallel are provided. Directly under the jacks is printed the amplifier's minimum impedance rating. The combined speaker impedance must never be less than this amount. A more complete discussion of speaker impedances and their effects is provided immediately after this section.

PRE AMP IN/OUT

This jack may be used either to drive a separate power amp, such as the Carvin SV125 or SV250, or to accept an outside pre-amplifier. The jack taps the circuitry between the channel pre-amps and the power-output section.

SUSTAIN FOOTSWITCH JACK

Used with the FS-11 Footswitch, this jack provides instant remote switching from a "clean" to a "distortion/sustain" sound. For more information, see "FOOTSWITCH FS-11."

FOOTSWITCH FS-11

The FS-11 Footswitch is available as an option to provide remote switching of the NORMAL and SUSTAIN MASTER VOLUME. To use, the footswitch cord is plugged into the NORMAL/SUSTAIN Footswitch jack, located on the rear of the chassis. Depressing the red tag changes the output of the amplifier from a clean sound to a sustained, distorted sound, rich in harmonics. The volume level of the clean sound is controlled by the NORMAL MASTER VOLUME, and the volume of the sustained sound is controlled by the SUSTAIN MASTER VOLUME.

By reducing the instrument's volume controls, a clean sound can be obtained from the SUSTAIN MASTER VOLUME, as described earlier. Therefore, the FS-11 Footswitch can be used as a volume switching footswitch, with the different volumes adjusted to any desired levels by the two MASTER VOLUMES.

The FS-11 controls an internal switching system located in the pre-amplifier. The final switching is actually done by a C-MOS integrated circuit. By inserting the footswitch plug, one of the two MASTER VOLUMES (depending upon the footswitch setting) is electronically switched off. Depressing the FS-11 instantly reverses which MASTER VOLUME is on, and which is off. Finally, removing the footswitch restores both MASTER VOLUMES to "on", where they are operated as described earlier in the manual.

WHY WORRY ABOUT IMPEDANCE?

SOLID-STATE AMPLIFIERS

All solid state amplifiers deliver their maximum power output to the lowest recommended speaker impedance. This lowest value is marked below the speaker jacks on the rear of Carvin Amplifiers. ("Total Minimum Imp").

For example, a 250 Watt Carvin amplifier is rated at 2 Ohms, minimum. This means that the maximum power, 250 Watts RMS, can be obtained using a speaker system with an impedance of 2 Ohms. Using a system with a 4 Ohm impedance, this amp will deliver 160 Watts RMS, and about 100 Watts into an 8 Ohm system.

Note that using impedances of *less* than the minimum results in an overload condition, and should never be allowed. Impedances greater than the minimum can always be used, but with a slight loss in maximum power.

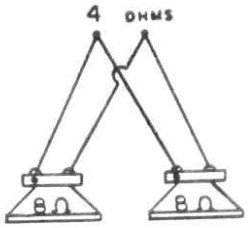
TUBE AMPLIFIERS

Tube amplifiers are not coupled directly to the speaker, as are solid-state amps. Instead, an output transformer provides an exact match to a specific impedance. Most well-designed tube amplifiers incorporate a switch to accomodate different speaker impedances. Full output power is always delivered to the impedance selected by the switch.

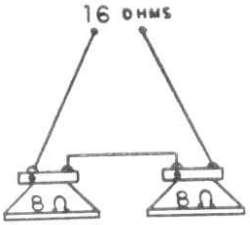
HOW CAN YOU DETERMINE IMPEDANCE?

Single speakers and speaker systems are always rated by the manufacturer. Common impedances are two, four, eight and sixteen Ohms, although other values are sometimes used.

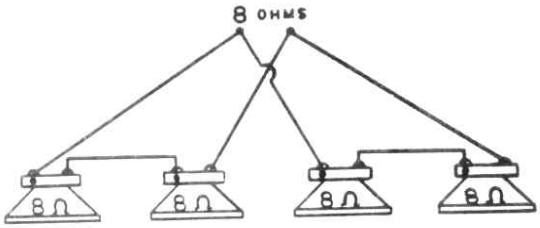
When more than one speaker, or speaker system, is combined, however, the impedance changes. The three basic interconnecting methods are shown below, with the changes in impedance each method causes. Although the drawing shows single speakers, the same is true of speaker systems.



PARALLEL



SERIES



SERIES-PARALLEL

When using speakers (or speaker systems) of impedances other than 8 Ohms, simply divide or multiply as necessary.

For example: A parallel combination of 4 Ohms (8 Ohms ÷ 2) is 2 Ohms (4 Ohms ÷ 2).

Similarly, a series combination of 16 Ohms (8 Ohms x 2) is 32 Ohms (16 x 2 = 32).

Remember that Carvin amplifiers feature two jacks wired in parallel. So if you plug one 16 Ohm speaker into each jack, what is the total impedance? 8 Ohms.

Your Carvin Product is one of the highest quality units available. With modest effort, it can be kept looking that way. A quick weekly cleaning is usually all that is required.

All vinyl surfaces can be kept in new condition by using one of the popular furniture polish/spray-wax products.

A new, inexpensive paint brush is an excellent investment for dusting the knobs and chassis as well as the heat-sinks or tubes.

The paint brush also does a fine job in cleaning the dust from gille cloth material.

Stubborn dirt may be removed with a tissue moistened in common rubbing alcohol.

Heavy vinyl covers are available for all Carvin equipment, and are strongly recommended for maximum protection against dirt, dust and abuse.

In the event that servicing becomes necessary, repack the equipment as carefully as possible in the original shipping carton. (If this is no longer available, extra care should be used to provide maximum shipping protection). Include a note describing the nature of the malfunction in full detail. The note may be affixed to the unit with masking tape. Return the equipment via United Parcel Service (UPS) or Parcel Post.

Allow up to 5 days for factory servicing, and from 6 to 12 days shipping time.

We thank you for the privilege of sharing this Carvin product with you. All comments, suggestions and evaluations are welcomed. Please address such correspondence to:

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