

Pure tube warmth was the objective in designing the TS100 Stereo Tube Power Amp. With an all-tube circuit path, this objective has been met. A total of four 12AX7's tubes and four EL34 power output tubes deliver 50W per channel or 100W bridged of power to the speakers. From the mirrored chrome front panel, to the double sided, mil-spec FR4 circuit board, this amplifier offers total quality. Whether used as a guitar amplifier or as a home stereo amplifier, the tube purist can enjoy the sounds of the TS100.

## GETTING STARTED QUICKLY

If you are like most players, you probably want to plug in your new amp and get started playing it right away. You can read the rest of the manual later to learn the finer points of operating your amp. You will need the TS100 amplifier, power cord, speaker cabinet, speaker cord and a signal source with cables. Plug the pre-amplifier output into the Channel 1 amplifier input. Plug the Channel 1 speaker output of the amplifier into the speaker cabinet. Select the correct impedance on the rear panel to match the speaker impedance. With the power and stand-by switches in the "OFF" position, plug the amplifier into the wall outlet. With all volumes down, turn on the pre-amplifier power and then the amplifier. After the tubes warm up, which takes about 30 seconds, turn on the "stand-by" switch. Increase the volume of the preamplifier and Channel 1 until desired loudness is reached.

## RECEIVING INSPECTION—read before getting started

INSPECT YOUR UNIT FOR ANY DAMAGE which may have occurred during shipping. If any damage is found, please notify the shipping company and CARVIN immediately.
SAVE THE CARTON \& ALL PACKING MATERIALS. In the event you have to re-ship your unit, always use the original carton and packing material. This will provide the best possible protection during shipment. CARVIN and the shipping company are not liable for any damage caused by improper packing.
SAVE YOUR INVOICE. It will be required for warranty service if needed in the future.
SHIPMENT SHORTAGE. If you find items missing, they may have been shipped separately. Please allow several days for the rest of your order to arrive before inquiring. RECORD THE SERIAL NUMBER on the enclosed warranty card for your records. Keep your portion of the card and return the portion with your name and comments to us.

## TS 100 TUBE POWER AMPLIFIER SPECIFICATIONS:

RMS Power: $\quad 50 \mathrm{~W}$ per channel or 100 W bridged
Output Impedance: $\quad 4 \Omega, 8 \Omega$, or $16 \Omega$ each channel ( $8 \Omega$ min. bridged)
Channel Sensitivity: $\quad 1 \mathrm{~V}$ for full output (full volume per channel)
Preamp Tubes:
Power Amp Tubes:
USA Model:
Export Model:
Dimensions:
Net Weight:
Warranty:
$2-12 A X 7$ (input buffer) $2-12 A X 7$ (phase inverter)
4 - EL34 (2 per channel switchable to 5881/6L6) 120VAC, 300VA
230VAC, 300VA
3.5" High x 19" Wide x 10 " Deep (2 rack spaces)
8.9 High x 48.2 Wide $\times 25.4$ cm Deep
$26 \mathrm{lbs}(11.3 \mathrm{Kgs})$
1 Year (tubes 90 days.)

## IMPORTANT! FOR YOUR PROTECTION, PLEASE READ THE FOLLOWING:

WATER AND MOISTURE: Appliance should not be used near water (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 product 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 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: 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.
FUSING: If your unit is equipped with a fuse receptacle, replace only with the same type fuse. Refer to replacement text on the unit for correct fuse type.

## SAFETY INSTRUCTIONS (EUROPEAN)

The conductors in the AC power cord are colored in accordance with the following code.

## GREEN \& YELLOW-Earth BLUE—Neutral BROWN—Live

U.K. MAIN PLUG WARNING: A molded main plug that has been cut off from the cord is unsafe. NEVER UNDER ANY CIRCUMSTANCES SHOULD YOU INSERTA DAMAGED OR CUT MAIN PLUG INTO A POWER SOCKET.

## LIMITED WARRANTY

Your Carvin product is guaranteed against failure for ONE YEAR unless otherwise stated. Carvin will service and supply all parts at no charge to the customer providing the unit is under warranty. Shipping costs are the responsibility of the customer. CARVIN DOES NOT PAY FOR PARTS OR SERVICING OTHER THAN OUR OWN. A COPY OF THE ORIGINAL INVOICE IS REQUIRED TO VERIFY YOUR WARRANTY. Carvin assumes no responsibility for horn drivers or speakers damaged by this unit. This warranty does not cover, and no liability is assumed, for damage due to: natural disasters, accidents, abuse, loss of parts, lack of reasonable care, incorrect use, or failure to follow instructions. This warranty is in lieu of all other warranties, expressed or implied. No representative or person is authorized to represent or assume for Carvin any liability in connection with the sale or servicing of Carvin products. CARVIN SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

## SERVICE

In the USA, please call 800-235-2235 for a RMA \# (return authorization number). Write this number on the box and enclose a description of the problem. Prepay to Carvin 12340 World Trade Drive, SD, CA 92128.
Outside the USA, contact your dealer or go to http://www.carvinworld.com for your nearest service center. Include a written description of the problem with serial number and date of purchase.

## HELP SECTION

1) AMP WILL NOT TURN ON

Check the power to the amp. Check for tripped circuit breakers, unplugged extension cords or powerstrip switches that may be turned off. Check the fuse. If a dark brownish color or no wire can be seen within the glass tube, then replace. The amp may be perfectly fine but occasionally a fuse may blow because of high AC voltage surges. After the fuse has been replaced with the proper Slow Blow value and if the fuse fails again, the amp will require servicing.
2) NO OUTPUT with POWER LIGHT ON

Tubes damaged in shipping will be the primary reason for your amp to not function properly. Please give us a call to help guide you through this simple repair.
3) KEEP YOUR AMP LOOKING NEW

Use a damp cloth to wipe the controls on the front \& rear chassis panels. Wipe the black vinyl covering with a damp cloth.

## PARD FAN PLASTIC $80 \times 80 \mathrm{~mm}$

NR AC 3/16AWG $8^{\prime} 2^{\circ}$ W/PLUGS CABLE RIBBON 24AWG 4PIN 102MM CABLE ASSY, 5 C 110MM KNOB CHROME W/BLACK LINE RETAINING CLIP EL34/5881 CHASSIS 2 SPACE UNIVERSAL FRONT PANEL TS10 BRACKET TS100
LID DCM POWER AMPS LID DCM POWER AMPS
TRANSFRMER OUTPUT 60 W TRANSERMERENSTPUT
POWER TRANSFORMER 12OVAC ROCKER SWITCH 16 A 250 V AC TUBE POWER EL34
12 AXX PRE AMP TUBE
FAN DC24V 80mm X $80 \mathrm{~mm} \times 25 \mathrm{~mm} 4$ MANUAL TS100 arvin P/N
 05-01603 05-24102 $05-24102$
$05-68440$ $05-68440$
$05-8511$ $05-85611$
$07-77710$ 10-00034 10-10008E 10-10111A 10-101178 10-82005 $15-02066$
$15-10714$ 15-10714
$25-31351$ 25-31351
$65-00034$ $65-00034$
$65-00127$ $65-00127$
$70-02408 \mathrm{~A}$ $70-02408 \mathrm{~A}$
$76-10111 \mathrm{~A}$ 77-10111A

Parts List for Printed Circuit Card Ref. Des.Description

## Carvin P/N

46-10412
46-10212
41-47343
42-82052
47-22260
47-22260
41-47242
45-18152
45-82052
46-10312
46-10312
46-10212
46-10212
47-47125
47-10225
47-10225
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$41-47242$
46-10412
41-47343
46-10412
46-47312-1
45-56052
41-47362
41-47362
47-47061
41-47362
42-82052
45-56052
42-82052
42-82052
41-47362
46-47312-1
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$45-18152$
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47-47061
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61-10000

DIODE RECT GEN 1N4007 1000 V 1A DIODE RECT GEN 1 N4007 1000V 1A DIODE RECT GEN 1N4007 1000V 1A FUSEHOLDER CLIPS 3AG VERT MTG CONNECT HEADER .086" 9 PIN CONNECT HEADER .100" 2 PIN CONNECT HEADER 8 PIN STRAIGHT CONNECT HEADER 8 PIN STRAIGHT CONNECT HEADER 4 PIN STRAIGHT CONNECT HEADER 4 PINSTRAIG CONNECT HEADER . 08665 PIN JACK 250 MODO PLASTIC WINSE JACK . 250 MONO PLASTIC W/INSER JACK . 250 MONO PLASTIC W/INSER JACK . 250 MONO PLASTIC W/INSER JACK . 250 MONO PLASTIC W/INSER JACK . 250 MONO PLASTIC W/INSER RELAY DPDT 2AMP@30V/5VDC COIL POT VERT TRIMMER 20K 20\% POT VERT TRIMMER 20K 20\% POT 16 "R" RX. $250-5 A 500 \mathrm{~K}$ METAL
POT 16 "R" RX. $250-5 A 500 \mathrm{~K}$ METAL POT 16 "R" RX. $250-25 A 25 K$ MTL POT 16 "R" RX. $250-25 A 25 \mathrm{~K}$ MTL RECEPTACLE AC W/FAST-ON CHASS REGULATOR VOLTAGE $5+\mathrm{V} 1$ AMP TERMINAL VERT MALE PC MTG . 250 TERMINAL 90dg MALE PC MTG . 250 TERMINAL 90dg MALE PC MTG . 250 TERMINAL 90dg MALE PC MTG . 250
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RES 220.00KOHM . $25 \mathrm{~W} 5 \%$ CARBON RES 220.00KOHM $50 \mathrm{~W} 5 \%$ CARBON RES 100.00 OHM $25 \mathrm{~W} 1 \%$ METAL RES $1.50 \mathrm{KOHM} .25 \mathrm{~W} 5 \%$ CARBON RES $1.50 \mathrm{KOHM} .25 \mathrm{~W} 5 \%$ CARBON RES 100.00KOHM .25W $5 \%$ CARBO RES $10.00 \mathrm{KOHM} .25 \mathrm{~W} 5 \%$ CARBON RES $4.70 \mathrm{KOHM} .25 \mathrm{~W} 5 \%$ CARBON RES 4.70 KOHM .25W 5\% CARBON RES 100.00 OHM $.25 \mathrm{~W} 1 \%$ METAL RES 1.50 KOHM . 25 W 5\% CARBON RES $4.70 \mathrm{KOHM} 1.00 \mathrm{~W} 5 \%$ CARBON RES 100.00KOHM . $25 \mathrm{~W} 5 \%$ CARBON


## FRONT \& REAR PANEL CONTROLS



## FRONT PANEL

## 1. POWER

Turns on power to the unit.

## 2. STAND-BY

Turns on high voltage to the tubes. Usually, this switch should be off when the amp is initially powered on until the tube filaments warm up ( 30 seconds, or more). The amplifier should be switched to stand-by whenever the amp will not be used for a short amount of time (like a set break) to increase tube life.

## 3. VOLUME

Controls the amount of signal sent to the power amp, which controls the output level. Start with this control all the way down. Make sure the preamplifier is connected and turned on and it's level turned up. Bring the amplifier volume up to the desired loudness. Experimentation will be needed to get the correct volume balance between the preamplifier output and the amplifier output level. The amplifier should be turned up at least one half with the knob indicator lines running vertical. Note: When the amp is in bridge mode, Channel 1 will be the master volume control - Channel 2 volume will not function.

## 4. PRESENCE

Controls the amount of clarity or crispness in the 6 kHz range. When this control is all the way down, the frequency response will essentially be flat. Bringing this control up will create a "bump" in the upper frequencies. Note: In bridge mode, track both Channel 1 and 2 presence knobs to the same position.

## 5. POWER LED

The blue LED indicates that the power supply has been turned on.

## REAR PANEL

## 6. AC POWER AND FUSE

The detachable AC power cord is designed to operate with one type of voltage. Check the rear label above the AC connector for the proper voltage. Make sure the AC cord is securely inserted. If not, the power amp could become intermittent. Plug the AC cord into a grounded 3-prong power source. No attempt should ever be made to defeat, or use the amp without the ground connected. The fuse is internal to the unit. Replace only with the same type and rating.

## 7. SPEAKER OUTPUT JACKS

Two 1/4" speaker output jacks are provided for each channel. Each pair of jacks are wired in parallel. Set the impedance switch accordingly for each channel. The total impedance for each channel should not be less than $4 \Omega$. Note: when in bridge mode, only Channel 1 output jacks will work and the impedance switch for each channel must set to half of the total speaker load impedance.

## 8. IMPEDANCE SELECTION SWITCH

Use the impedance switch to match the speaker load to the output transformers. This switch should be set to the equivalent load connected to the speaker outputs of each channel or loss of output power will result. The speaker output jacks are in parallel so if two $8 \Omega$ speakers are connected the total impedance would be $4 \Omega$ for that channel. Likewise if two $16 \Omega$ speakers are used, then move the impedance switch to $8 \Omega$.
Note: when in the bridge mode, the impedance switch for each channel must be set to one half the total load impedance. This means for two $16 \Omega$ or one $8 \Omega$ speaker, set each channel to $4 \Omega$. If you are using one $16 \Omega$ speaker, then set each channel to $8 \Omega$. The minimum impedance for the TS100 in bridged mode is $8 \Omega$.

## 9. BRIDGE/STEREO SWITCH

For mono 100W output, set this switch to "BRIDGE". If using the bridge mode, use the speaker outputs from Channel 1 only and use the Channel 1 volume control. If stereo operation is desired, set to "STEREO" mode. In this mode, both channels operate as separate 50W amplifiers and each channel's controls can be adjusted independently. Make sure the impedance switch is properly selected for each channel.

## 10. GROUND LIFT SWITCH

Many times amplifiers and preamps are connected in such a manner as to cause a grounded loop with the inputs which results in audible hum. To activate, press this switch in to lift the ground. If the hum has not been reduced, then try installing a Carvin MTF55 "Ground lifter" between the amplifier input and the signal.

## 11. PARALLEL INPUTS SWITCH

Pressing this switch in will split the signal that is plugged into the Channel 1 input to both Channel inputs. Channel 2 input will no longer function when this switch is activated.

## 12. CHANNEL INPUTS

A $1 / 4^{\prime \prime}$ unbalanced jack is used to deliver signal to each of the amplifiers channels. If it is desired to use the amplifier for home audio, an RCA to 1/4" adapter (Carvin \#AD66) will most likely be needed. The amplifier can accept a wide range of signal levels.

d) Make sure the bias select switch is in the correct position for the tube type and the meters are set to "mA" or milliamps.
e) Power up the amplifier - switch the stand-by switch on. Adjust the bias pots accordingly to obtain a 50 mA reading on each of the milliamp meters. Leave the amp on for a few minutes making sure the readings don't change. Turn the amp off, leaving the standby switch on and let the residual high voltage bleed down. Remove the milliamp meters from the series connection and re-attach the red wires directly to QC2 and QC16 again. The amp is now correctly biased. CAUTION: The power supply capacitors will remain "charged" for a period of time after the amp has been turned off with voltages near 500 volts.
(If only volt meters are available, an alternate method of biasing can be used by substituting $1 \Omega, 1 / 2$ watt resistors where the milliamp meters would be as described above. The voltage across each resistor should read 50 mV corresponding to 50 mA . The rest of the procedure outlined above is the same.)

