

# SFM-160 PRIVATE MONO TUBE AMPLIFIER

## OPERATING MANUAL

We at Sonic Frontiers are sure that you will derive many years of listening pleasure with your new SFM-160 Mono Tube Amplifiers. This brief operating manual contains important information regarding the operation and care of the amplifier, so be sure to read this manual carefully and follow these simple instructions in order to keep it looking, operating and sounding its best!

## VACUUM TUBES

### Handling

We suggest that you do not handle the large power tubes with your bare hands or fingers as skin oils deposited on the glass surface can “leach” through the glass envelope and cause the tube to become “gassy.” In other words, your tube life may be shortened unnecessarily. Use a paper towel or one of the cotton gloves (supplied) instead. This is also the recommended procedure for handling the small input tubes. Also, check to be sure that none of the 6DJ8 tube pins are bent when you install them.

### Installation

Whenever you remove or insert the input or power tubes into their sockets, handle them gently and do not force them into the sockets. Instead, “rock” them slightly as you slowly push them into place, making sure that they are properly seated. Over-enthusiastic “rocking” may result in the cracking or breaking off of the keying lug (orientation pin) of the output tube (this is not covered under your 1 year tube warranty).

### Recommended Tube Types

Your SFM-160 amplifiers are supplied from the factory with 6DJ8 tubes for the input and driver stages (installed into the small sockets). You may also use tubes of the following designations: ECC88, 6922, or 7308/E188CC.

The power tubes are factory supplied matched pair KT99/KT99(a)'s but you may also use 6550/6550A (GOLD AERO or GE, not a CHINESE type) or KT90/KT90(a) types. Although not essential, we recommend the use of matched pairs or matched quads of power output tubes for lowest distortion.

**NOTE:** A true KT88 tube, built to the original British M.O. Valve/Genelex/Gold Lion standards, may become available in the near future. Until then, the only warranty authorized KT88 type tube that can be used is the M.O. Valve/Genelex/Gold Lion version - NOT THE CHINESE version!!!!

We do not authorize the use of the CHINESE KT88 or 6550 in the SFM-160 amplifiers as the amplifier runs with over 625V dc on the plates. The CHINESE power tubes will likely fail under these operating conditions; any damage caused to the SFM-160's through the use of these tubes will not be covered under warranty! Use only the tube types and brands recommended above.

## **STANDBY/OPERATE Switch**

On the right front panel of the amplifier, you will find a rocker switch which controls the operating mode of the amplifier. In the “DOWN” position, the amplifier is in STANDBY.

### **STANDBY**

In this position, your amplifier is ON but the tubes are “Idling” at a very low bias setting. The amplifier will not pass an audible input signal. This switch is very useful in prolonging the life of your output tubes.

### **OPERATE**

In this position, the amplifier will bring the bias setting up to the preset level, allowing the signal to be amplified. Anytime the amp is not being actively used, either switch the amp OFF or switch the amp into STANDBY.

## **OPERATE/MUTE Switch**

On the back panel of the amplifier, you will see a toggle switch labeled OPERATE/MUTE. This is used to MUTE the input signal. The primary use of this switch is to allow the user to remove (or connect) INPUT interconnect cable from the amplifier, preamplifier (or signal source) without the need to “power down” the amp.

This feature will prevent “speaker destroying” bangs, hums, buzzes and thumps from being passed through the amplifier during these cabling changes.

## **TUBE BIASING**

This is a simple yet important function of the front panel meter, the selector switch and the four slotted adjustment controls protruding above the top surface of the chassis.

It is essential that the following procedures be followed before you turn on your SFM-160 amplifiers.

### **OPERATION**

1. Connect your speaker leads, input cable and power cord to each amplifier, making sure the power switch is in the “OFF” position (down).
2. Using a long-handled slotted screwdriver, rotate both of the adjustment controls fully counter-clockwise.
3. Turn “ON” the amplifiers. After approximately 5 seconds you should see an orange glow appearing inside each tube. Wait one minute, then turn the selector switch to the “V5” position

marked on the chassis. Insert the screwdriver into the corresponding bias control and watch the meter pointer as you slowly rotate your screwdriver clockwise. Adjust the control until the pointer indicates "50" on the meter. Now rotate the selector switch to the "V6" position and rotate the V6 bias control clockwise to set the meter pointer at "50." Follow the same procedures for LV3 and LV4. Wait a few minutes and recheck the settings for all 4 output tubes.

Once you have finished adjusting all 4 bias controls, return the selector switch to the "OFF" (centre) position.

Your SFM-160 amplifier is now ready for use.

**NOTE:** The red mark at the "50" point on the meter scale is the maximum recommended bias point for the KT99(a)/6550A output tubes. Setting the bias meter to read in excess of this value will exceed the rated dissipation rating of the tubes and unnecessarily shorten your tube life with no redeeming sonic benefit. You may, if you wish, operate the tubes at the "40" mark for somewhat longer tube life. If you are unable to perform the previous adjustments, turn to the "Trouble-Shooting" section of this manual on Page 3.

## CLEANING

The beautiful stainless steel (non-magnetic) finish of the chassis and transformer top covers will last for years. A regular dusting with a soft, non-abrasive cloth will generally keep the finish looking like new. Fingerprints may be removed with a small amount of silicon spray, such as WD-40 TM. Be sure to apply any liquid into a soft cleaning cloth, not directly onto the chassis. At no time should you allow any liquids to drop onto the amplifiers; it may run into the electronic circuitry underneath and cause damage which will not be covered under your warranty!

## TROUBLE-SHOOTING GUIDE

If at any time a SFM-160 amplifier fails to work, follow this simple checklist:

1. Make certain that the A.C. power cord is plugged in firmly, both at the A.C. wall socket and at the A.C. amplifier socket.
2. Make sure that you have biased the output tubes.
3. Remove the A.C. power cord at the amplifier and open the fuse hatch on the A.C. input socket. Check that:
  - A. A "slo-blo" fuse, with a rating of 5 amps 250V (0.25" x 1.25"), is installed (or 2.5 Amp 250V (5mm x 20mm) for European and Asian versions).
  - B. That the A.C. power fuse is intact and has not blown.
4. If the power line fuse has blown, replace it with a same size and type fuse of the same rating (5 Amp 250V. slo-blo - 100 to 120 Volt Countries / 2.5 Amp 250V. - 200 to 240 Volt Countries).

5. Turn on the amplifier. If the amplifier fails to operate, turn off the amplifier, remove the four KT99/KT99a power tubes (using a glove, cloth or paper towel) and turn the amp on again. If the two small 6DJ8 type tubes glow and the A.C. line fuse remains intact, it is likely that one of the four power tubes has shorted and should be replaced.

6. If the fuse blows again without the power tubes installed, then you should return the amplifier to your dealer or to a service depot for repair.

**NOTE:** Under no circumstances should you replace the A.C. power fuse with one of a higher current rating! Doing so may cause further damage to the amplifier in the event of a fault condition and will also void your warranty! In addition, your continued protection from the risk of fire or shock would be seriously compromised.

**NOTE:** The surge capabilities of slo-blo fuses from different manufacturers vary. If in doubt, replace your fuse with one supplied by SONIC FRONTIERS or your distributor.

7. If at anytime you are unable to adjust the meter pointer to read at least "35" on the meter, for any one of the four power tubes, you should replace the tube as it is nearing the end of its useful life.

8. If you experience a slight "HUM" in your system, you may have a "Ground Loop." This is caused by having more than one grounded component in your system when all these components run off the same AC circuit. To eliminate this problem, "lift the ground" (either remove the ground prong off your AC cord or use a 3-to-2 adapter plug) on one of the components, preferably a source component such as a Preamplifier. If you are still unsure, please contact your dealer for further assistance.

## **TUBE CAGE**

The tube cage serves to both protect the vacuum tubes in the SFM-160 amplifier from physical damage and to prevent small children or pets from burning themselves. The tube cage snaps easily into the four sockets located at the edge of the chassis, but is quite difficult to remove. This is intentional in order to maintain safety while allowing quick user access to tubes and bias controls when needed. (Please refer to the TOP COVER REMOVAL insert in your literature package).

If possible, the SFM-160 amplifier should be operated without the cage as the tubes will have somewhat better thermal cooling.

## **VENTILATION**

Your SFM-160 amplifier must be placed on a flat hard surface to allow proper air flow through the ventilation slots in the bottom panel. Failure to do so may result in overheating of electronic components inside the unit and possible damage to your amplifier.

## **PACKING MATERIAL**

We recommend that you retain all of the packing material and shipping boxes for your SFM-160 amplifier. They are custom designed to prevent shipping damage from occurring. SONIC FRON-

TIERS INC. will accept no responsibility for any damage occurring to amplifiers that are shipped in packing material other than the original SONIC FRONTIERS INC. packing material.

## **SAFETY INSTRUCTIONS**

1. **WATER AND MOISTURE** - This product should not be used near water. Do not expose this product to rain or moisture to prevent fire or shock hazard.
2. **HEAT** - This product should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances which produce heat.
3. **POWER SOURCES** - This product should be connected to an AC power source of the same rated voltage. The original shipping containers will stipulate the AC voltage this unit can operate on.
4. **CLEANING** - see previous section in this manual.
5. **SERVICING** - Do not open this product. **NO USER SERVICEABLE PARTS INSIDE.** Refer servicing to qualified service technician.
6. **NON-USE PERIODS** - The power cord of this product should be unplugged from the outlet when left unused for an extended period of time.

## **DISCLAIMER OF LIABILITY**

Under no circumstances does SONIC FRONTIERS INC. assume liability or responsibility for injury or damages sustained in the use or operation of this equipment or for damages to any other equipment connect to it.

SONIC FRONTIERS INC. reserves the right to make design changes or improvements without the obligation to revise prior versions. All specifications are subject to change without notice.

## LIMITED FIVE YEAR WARRANTY

SONIC FRONTIERS INC. warrants to the purchaser that each pair of SFM-160 Mono Tube Amplifiers are free of manufacturing defects for a period of five (5) years from the date of purchase. This five (5) year limited non-transferable warranty excludes all vacuum tubes, which we warrant for a period of 1 year. To receive this warranty, the original purchaser must mail to SONIC FRONTIERS INC. within thirty (30) days from date of purchase, the enclosed WARRANTY REGISTRATION FORM completed, along with a copy of the bill of sale from an authorized SONIC FRONTIERS dealer. SONIC FRONTIERS INC. will then validate the warranty to the original purchaser. This warranty is subject to the following conditions and limitations:

1. This warranty applies only to the original purchaser.
2. This warranty is void and inapplicable if the product has been handled other than in accordance with the instructions in the OPERATING MANUAL, abused or misused, damaged by accident or neglect or in being transported, or the defect is due the product being tampered with, modified or repaired by anyone other than SONIC FRONTIERS INC. or an authorized SONIC FRONTIERS repair depot.
3. This warranty does not cover normal maintenance.
4. SONIC FRONTIERS INC. shall not be responsible in any way for consequential or indirect damages or liabilities resulting from the use and operation of the product covered herein or resulting from any breach of this warranty or any implied warranty relating to said product.

During this period, SONIC FRONTIERS INC. will repair or replace any defective components free of charge. A Return Authorization Number is required before any amplifier is returned to our factory for any reason. This number must be visible on the exterior of the shipping container(s) for SONIC FRONTIERS INC. to accept the return.

Units shipped to us without a Return Authorization Number or without a visible RA number on the exterior of the shipping container(s) will be returned to the sender, freight collect.

Units to be repaired by SONIC FRONTIERS INC. must be sent shipping and insurance prepaid by the original purchaser in the original packing material. A returned product should be accompanied by a written description of the defect. Repaired units will be returned by SONIC FRONTIERS INC. shipping and insurance prepaid.

All other warranties or conditions either written or implied are void.

## TECHNICAL SPECIFICATIONS

Power	160 watts RMS from 20 Hz to 20 kHz (50 ma. bias, 1 channel driven)
Power Supply (energy storage)	370 joules
Frequency Response (1 watt into 4.5 ohms)	4 Hz to 35 kHz + 0.5 dB 3 Hz to 70 kHz - 3.0 dB
Input Impedance	100 Kohms
Input Sensitivity	1.4V RMS at 1 kHz for 160 watts
Power Requirements	450 VA 50/60 Hz (Maximum)
Fuse Requirements	5 Amp 250V slo-blo - 100V to 120V Countries 2.5 Amp 250V slo-blo - 200V to 240V Countries
Tube Complement	2 - Matched pair KT99(a) 2 - 6DJ8
Dimensions	18 in. Wide x 14.5 in. Deep x 9 in. High
Weight	58 lbs. (28 kg) - unpacked (per mono amp)

**NOTE:** All specifications based on the use of factory supplied tubes.