

**ADCOM  
POWERAMP  
GFA-1**

## ADCOM GFA-1 OWNERS MANUAL

### WELCOME

Your Adcom GFA-1 power amp represents a revolutionary concept in high performance power amp design. Thorough rethinking of the basic power amp concept has resulted in a design with superior performance, yet available at a reasonable price. Such a product from Adcom is only natural. Throughout its many years in audio, Adcom has always been associated with state-of-the-art components utilizing advanced technology and realistic cost designs. Its innovation and technology have expanded into such varied areas as record care products, speaker systems, and phono cartridges (most recent of which is the new high output (Crosscoil<sup>TM</sup>) moving coil cartridge).

This manual represents the same kind of innovative thinking reflected in other Adcom products. We have written it to reflect the kinds of questions and problems you might encounter in enjoying the full benefits of your Adcom GFA-1 power amp. We ask that to enjoy the maximum from this truly unique product, you thoroughly read this owners manual before turning it on. (For those in a hurry, please read Sections 1 through 4).

### SECTION 1    WHAT TO DO WHEN YOU OPEN THE BOX

Before each GFA-1 left the factory, it was carefully inspected for physical imperfections as a routine part of Adcom's systematic quality control. This, along with full electrical testing, should ensure a product flawless in both appearance and performance.

After you have unpacked the amplifier, inspect it for any physical damage.

Save the shipping carton and all packing materials as they are designed to reduce to a minimum the possibility of transportation damage.

In the unlikely event that damage has occurred, immediately notify your dealer and request the name of the carrier so that a written claim to cover the damages can be initiated.

CAN BE FORFEITED IF THE CARRIER IS NOT NOTIFIED PROMPTLY AND IF THE SHIPPING CARTON AND PACKING MATERIALS ARE NOT AVAILABLE FOR INSPECTION BY THE CARRIER. SAVE ALL PACKING MATERIALS UNTIL THE CLAIM HAS BEEN SETTLED.

## SECTION 2 WHERE TO PUT IT (AND WHERE NOT TO)

The GFA-1 utilizes an internal fan for forced air cooling. This fan ensures long term stability and excellent performance under any normal operating conditions. However, adequate quantities of outside air must be available to the fan so that proper cooling can occur, Therefore, the GFA-1 should not be completely enclosed with other heat producing components and although the amplifier can be mounted in any position, adequate space around the amplifier should be maintained. We recommend at least  $\frac{1}{2}$  inch on top, bottom and sides with one inch front and rear. If the GFA-1 is going to be mounted in an enclosed cabinet, it is recommended that a vent port in the cabinet be provided to allow circulation around the amplifier. With these considerations in mind, the GFA-1 should perform quite happily in any habitable environment. Of course, such normal considerations as protection for excessive dust or moisture should always be considered. But overall, the Adcom power amp has been carefully designed with high quality components so that long term undiminished performance may be expected from the amp, when it is operated in accordance with the instructions provided.

It is not uncommon for the power transformer in high powered amplifiers to generate mechanical humming which is barely audible, and does not affect the amplifiers performance. To minimize the audibility of this humming sound, mount your amplifier on a non-resonating surface.

## SECTION 3 WHERE (AND HOW) ALL THE WIRES GO

All connections are conveniently located on the rear panel of the GFA-1. Any suitable program source, such as a control preamp, tuner-preamp, or tape playback preamplifier may be used. ALL CONNECTIONS

MUST BE MADE WITH AC POWER OFF.

When making input signal connections, only high quality shielded (co-axial) audio cables should be used. The left channel input is labeled CHANNEL A. The right channel input is labeled CHANNEL B. The input jacks accept the standard two-conductor RCA phono plugs. (This is used almost universally on audio equipment).

The line cord should be plugged into an AC outlet providing 120 Volts AC, 50-60 Hertz. The output connections from the GFA-1 can be made to all standard or electrostatic loudspeaker systems of 4, 8, or 16 Ohms. Because of the unique Balanced Bridge<sup>TM</sup> design of the GFA-1 amplifier. The negative terminals of the power amplifier do not represent a true ground, but instead, as in a theoretically perfect amplifier, the negative half of the wave-form. Because of this unique design, the GFA-1 minus terminals must not be connected together. Any speaker system or speaker selector switching system requiring the negative terminals to be commoned (tied together) cannot be used with the GFA-1. Since the vast majority of speakers do not require this, you'll find only in rare instances that this may be a problem requiring discussion with the factory. When connecting speakers to the GFA-1, you should always use the largest wire size (lowest gauge) that is available to you. We recommend at least 16 gauge, 2-conductor lamp cord (zip cord) for distances up to 25 feet, for distances of 25-50 feet, use 14 gauge wire, and for distances of 50-200 feet, 12 gauge wire should be used. You also may wish to consider some of the commercially available speaker cable which has been specially designed to improve the performance between the power amplifier and the loudspeaker. In all cases, it is to your best sonic advantage to keep the wire distances as short as possible between the power amplifier and the speakers. When connecting the speaker wires, correct phasing is required to obtain maximum bass response and to preserve a unity in sound then vocalists perform. The simplest way to effect proper phasing is to closely inspect the wire being used. Some form of coding is always employed, whether a ridge or groove on one edge or side of the wire,

or one of the wire may be tinned. Once determined, this same coded wire should be connected to the positive terminal of the speaker system. Then follow the same procedure for the other loudspeaker. An alternate method for ensuring proper phase response is to connect the speakers and then place the two speakers side by side. Play some mono program material with heavy bass content through the system. Now turn off the system, and reverse one pair of leads to one speaker. Turn on the system and play the same passage again. If the bass response has increased, leave the system as it now is. If it has diminished, turn off the system and rewire it as it was originally set up. When making loudspeaker connections care must be taken to avoid short circuits which will cause improper operation of the amplifier.

#### AMPLIFIER/LOUDSPEAKER PROTECTION CIRCUIT

Your amplifier is equipped with a relay protection circuit which is designed to protect your loudspeaker from possible damage, and will also protect itself under all but the severest abuse of operating conditions. If under any circumstances any D.C. subsonic frequencies appear at the amplifier output, the amp will disconnect itself from the load (loudspeaker) and will remain disconnected until the problem has been rectified. The sensitivity and slope of the protection circuit is adjusted so that a "thumping" tuner muting circuit, "flicking" the stylus to clean it, or dropping the stylus on the record will disconnect the loudspeaker momentarily thus avoiding the damage which would normally result from such malfunctions. The relay is designed so the amplifier will not shut off entirely but will allow a very low signal to be heard. A thermal cutout is also employed to protect the amplifier under high temperature conditions. The amplifier is protected by an AC line fuse, and utilizes a low impedance electronic sensing circuit which limits output current into loads below 2 Ohms without limiting the current into loads of 4 Ohms or higher (or reactive loads such as electrostatic transducers).

You will notice a turn-on delay of 3-5 seconds. This is normal operation to prevent turn-on transients or "thumping".

#### SECTION 4    WHAT NOT TO DO!

CAUTION: BURN OUT OF THE OUTPUT STAGE BECAUSE OF FAILURE TO OBSERVE THE FOLLOWING PRECAUTIONS WILL VOID THE WARRANTY AND/OR SERVICE CONTRACT.

There is no such thing as absolute reliability or protection when amplifiers are abused. While the GFA-1 amplifier has been designed to withstand most conditions, it may not be impervious to gross abuse. There is one condition which must always be avoided: This condition is called RF Detection and will almost certainly cause failure of the output devices if initiated. Because Adcom amplifiers have an extremely wide bandwidth, it is almost impossible to protect against burnout if abused. The following acts cause RF Detection and MUST be avoided:

1. Connecting the inputs or outputs while amplifier is on.
2. Using the "thumb test". It is a dangerous habit to connect cables to the inputs and touch the other end of the cable while the amplifier is on. This may not only cause amplifier failure but may also destroy your loudspeakers due to the high power surge emitted from the amplifier.

It is wise to follow the procedure of completely hooking up your system before turning anything on! A few simple precautions will contribute to trouble-free performance. Because of the extremely high power of the GFA-1, Adcom will not be responsible for any damage to speakers or other components due to their inability to handle the amplifier's high power or for any other misuse.

#### SECTION 5    IF YOU DISCO

Because of the GFA-1's compact size and high power output, it is rapidly finding wide acceptance in the

disco sound reinforcement market. Should your interest fall in this area, please contact the factory about the special disco modification. This conversion which will increase the rate of forced air cooling to ensure optimum operation under continuous high-level disco conditions, is not necessary for normal home applications.

#### SECTION 6    WHY WE BUILT IT THE WAY WE DID

The Adcom GFA-1 represents a unique departure from conventional amplifier design. This departure was not just to be different, but the result of careful studies into available designs, circuits and parts. Our study showed there were basically three kinds of amplifiers that could be built with today's technology and parts: First, a high performance, sonically accurate, low power design. Second, a high power, medium performance design. And third, a high performance, high power design which was inevitably very expensive. Since none of these offered optimum power and performance at reasonable cost, Adcom developed a fourth concept, the Balanced Bridge<sup>TM</sup> amplifier. Although bridging mono amplifiers is not a new concept, Adcom is the first to offer a fully developed product, carefully designed to utilize fully complementary Balanced Bridge circuitry. The GFA-1 basically uses two high accuracy power amplifiers per channel, one designated to drive the positive output terminal and one designated for the negative output terminal. By connecting the speaker across the bridge between these two power amplifiers, many of the inherent problems of conventional designs are overcome. In conventional designs, careful attention must be paid to the positive output terminal with feedback control and compensation. However, the negative terminal is assumed to be a perfect ground, which unfortunately is not usually the case. In the GFA-1 both the positive and the negative terminals have carefully controlled feedback and drive networks. This ensures that both the positive and negative waveforms, no matter how complex or unique, can be fully and carefully driven under all conditions into virtually

any speaker load. By combining the advantages of low power high-performance into a high power package, Adcom has created for the first time in history, an amplifier with the power capability to really drive (with ample headroom) any of the modern speaker systems; yet providing the highest degree of sonic accuracy. We consider it a truly significant contribution to the advancement of sound technology. To ensure that the quality of construction is on par with the quality of sonics, (a much neglected area in other moderate priced amplifiers) the GFA-1 has been carefully developed with computer controlled metal fabrication techniques that maintain .005 of an inch tolerance throughout. Forced air cooling greatly extends component life by lowering the heat build up which eventually degrades performance in other products (they begin life by meeting spec's and rapidly deteriorate). Full electrical inspection of each and every circuit board, sub-assembly as well as the finished amplifier provide a sonically and mechanically superior product for your enjoyment.

#### SECTION 7 THE CARE AND FEEDING OF YOUR GFA-1

Great care has been taken by Adcom to assure that your amplifier is as flawless in appearance as it is electronically. The panel is finished with a high grade black vinyl, chosen for its durability as well as its beauty. If it should become fingerprinted or smeared, it can be cleaned best by using a soft cloth dampened with a solution of LIQUID detergent and water.

UNDER NO CIRCUMSTANCES SHOULD A STRONG OR ABRASIVE CLEANER SUCH AS SCOURING POWDER OR OVEN CLEANER BE USED ON ANY PART OF THE AMPLIFIER.

The amplifier is protected by a line fuse on the rear panel. When power is switched on and the small red light on the front panel does not illuminate after a few seconds, shut off the amplifier, unplug the AC line cord from the power source, and check the line fuse.

If the fuse has opened, replace it ONLY with



a fuse of equal value.

Replacement with an incorrect fuse or one of higher current rating will not protect the amplifier and will void the warranty. If after replacing the fuse, it blows immediately, an electronic component failure must be suspected. No further attempts to replace the fuse should be made.

#### SECTION 8 IF YOU HAVE A PROBLEM OR A QUESTION

Adcom has a Technical Service Department to answer all questions pertinent to the installation and operation of your unit. Please feel free to write us in the event of any difficulty, and we shall endeavor to offer prompt advice.

If your problem cannot be resolved through our combined efforts, we may wish to refer you to a nearby authorized repair agency or we may prefer to authorize return of your unit to the factory. To aid us in directing you to a convenient service station, it would be helpful if you indicate which major city is accessible to your home.

Please address inquires to:

Adcom Technical Service Department  
9A Jules Lane  
New Brunswick, N.J. 08901  
U.S.A.

Be sure to include the serial number of your unit, date of purchase, and name and address of dealer.

In the event it must be returned, an authorization form and proper packing instruction will be forwarded to you. This authorization form **MUST BE RETURNED** with your unit.

**UNDER NO CIRCUMSTANCES SHOULD YOUR UNIT BE SHIPPED TO THE FACTORY WITHOUT PRIOR AUTHORIZATION, OR WITHOUT ORIGINAL PACKING CARTON AND FILLERS.**

If the original shipping carton has been lost or discarded, or if the carton is not in good condition, a duplicate carton may be obtained from our Service Department for a nominal charge.