

# Owners Manual

## Genesis Reference-Series Amplifiers

### Maximum Dynamic Headroom Reservoir

Version 1.2

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**FOR:**

**UNCONDITIONAL REFERENCE PERFORMANCE**

**• IN THE HIGH-POWER CLASS D AMPLIFIER CATEGORY •**

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# A Message from Genesis

The Genesis Reference Series of amplifiers was created as the finest amplifiers available for the reproduction of music in the home. During development, we benchmarked against the best cost-no-object amplifiers – both solid-state and vacuum tube. However, we were also intent on developing a value-priced product.

In the course of developing the Dynamic Power Delivery Supply (DPDS), we recognized that there was a point of diminishing return. However, we also recognized that there was a definite benefit of going beyond that point – at a significant increase in cost.

In order to make the basic version of the DPDS affordable, the power supply was split behind that point of diminishing return, and the maximum possible extension of the power supply. That is what you have now – the Maximum Dynamic Headroom Reservoir (MDHR) – which we fondly call *Max Headroom*<sup>#</sup>.

Before using this unit, please take the time to carefully review the information contained in this Owner's Manual. Becoming familiar with the correct operating procedures will help assure you of safe usage, reliable operation, and maximum musical enjoyment.

Please write the serial number and purchase details of your Genesis Reference Amplifier here for future reference.

Serial Nos.: \_\_\_\_\_

Bought at: \_\_\_\_\_  
\_\_\_\_\_

Date: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Tel: \_\_\_\_\_

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<sup>#</sup> The nickname "Max Headroom" comes from a British cyberpunk movie in which Max Headroom is a computer generated personality which has almost control of everything that goes on in the mainframe computer system in which it (he?) resides. Hence, the MDHR allows the Genesis Reference Amplifier to have total control of any loudspeaker attached to it.

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## Set-up and Operation

### Placement and Connection

The Maximum Dynamic Headroom Reservoir (MDHR) is an add-on power supply upgrade for the Genesis Reference Series amplifiers. One MDHR can be used for any one single amplifier module – including the GR180 stereo unit, the GR360 stereo unit, the 2-channel servo-controlled bass amplifier module, the 3-channel servo-controlled bass amplifier module, and the GRM monoblock amplifier module.

The MDHR unit is designed to be placed directly on top of the amplifier module that it supplies power to. The feet on the bottom of the MDHR are placed so as to provide additional damping for the top cover of the amplifier chassis.

**DO NOT OPEN THE CHASSIS OF THE  
MAXIMUM DYNAMIC HEADROOM  
RESERVOIR. IT CONTAINS LETHAL  
VOLTAGES INSIDE THAT CAN STILL BE  
LETHAL YEARS AFTER THE UNIT HAS  
BEEN DISCONNECTED FROM THE MAINS**

A short Power Umbilical is provided for the connection between the MDHR and the amplifier unit. You will want this connection to be as short as possible in order to achieve the lowest possible impedance on the link.

To install the MDHR into your system, proceed as follows:

- 1) Place the MDHR unit on top of the amplifier module that it will supply.



- 2) Turn off the amplifier using the toggle switch (if it is not already turned off) and unplug the blue Neutrik connector on the Power Umbilical from the back of the amplifier, and plug it into the blue Neutrik inlet on the back of the MDHR.



- 3) Plug the grey Neutrik connector on the short Power Umbilical supplied together with the MDHR into the grey Neutrik outlet on the back of the MDHR.



- 4) Plug the blue Neutrik connector on the short Power Umbilical into the blue Neutrik power inlet socket on the amplifier unit.



- 5) Turn your amplifier back on and enjoy.

Just another warning – do not remove the bottom of the MDHR. It contains storage capacitors that arrive charged, and we do not use “bleeder” resistors. Because we use very high quality capacitors, they can retain their charge for years – there is over 180,000uF of storage at 120V inside the unit. Hence, it can be lethal to touch any live parts inside.

The MDHR contains a huge amount of storage, and hence is delivered partially charged up. At the factory, we have to use a variac to slowly apply the voltage to the unit. This charges up the storage banks slowly and prevents damage to the MDHR. We do not recommend that you drain the charge on the MDHR. If the power goes out, turn off the amplifier off immediately, and unplug the MDHR from the amplifier.

If you have inadvertently drained the MDHR, for example by running your amplifier with the mains shut off, you may trip the main circuit breakers or blow the fuse on your power transformer module if you try to turn it back again due to the huge surge of power to charge up the capacitor banks.

If the MDHR is fully drained, first disconnect everything. Next, power up the power transformer module, then connect the MDHR to the power transformer, then connect the MDHR to the amplifier unit, then turn the power amplifier on. If you have a power conditioner that will prevent surges of power (like the IsoTek Mira), you may be also to use that during the turn-on.

## About the Maximum Dynamic Headroom Reservoir

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The Maximum Dynamic Headroom Reservoir (MDHR) is an extension of the Dynamic Power Delivery Supply (DPDS) that is inside the Genesis Reference Series of amplifiers. Hence, it is useful to revisit the DPDS before expounding on what the MDHR is.

Traditional DC power supplies developed with established design principles are usually specified into a constant current draw with a resistive load. However, except for Class A amplifiers (and Class AB at low power), the load is not linear. The power supply is hence specified for the maximum current drawn, but such a huge power supply is often slow, resulting in a dark, brooding, muscle-bound sound.

The Genesis DPDS, on the other hand, is designed to deliver current into a non-linear, dynamic musical load, leading to a sense of power with finesse. The result is that the Genesis Reference Amplifier has the dynamics, extension and drive of high-power transistor amplifiers without the muscle-bound sound, and the elegance, emotion and tonal colors of flea-powered single-ended triode tube amplifiers without being weak or flaccid.

The origins of the DPDS comes from the principles of tube amplifier design – some of the qualities of tube amplifiers were as much to do with power supply design as the choice of tubes over transistors. Because of the high voltages involved, tube amplifiers use relatively small capacitors and chokes to produce smooth DC power.

Transistor amps use cheaper/larger electrolytic capacitors to do much the same job. From this we discover a very simple fact, smaller capacitors usually sound better. There is good science to predict that the high frequency performance of large capacitors will be poor.

There are lots of very small solid-state amplifiers that have excellent sound. They all had tiny power supplies, and the smaller the power supply, the “faster” they sounded. On the other hand, very large power amplifiers with huge capacitors, or even large banks of smaller capacitors in their power supplies tended to sound dark and slow.

This is the issue of speed vs power. The sprinter is not able to sustain the delivery of power for very long, but the marathon runner is not able to deliver very quick bursts of speed. The DPDS is like a relay team with sprinters, medium-distance, and long distance runners in the team. Thus, it is able to deliver high sustained power, as well as very quick bursts of speed.

Such a “relay team” is what gives the Genesis Reference Amplifier the excellent micro-dynamics, tonal contrasts and timbre textures of low-powered amplifiers, and yet is able to deliver huge dynamics and the sustained deep bass of muscle amps.

The basic DPDS in the Genesis Reference Amplifiers has a “relay team” of seven. This was the point at which further enhancement of the “relay team” produced diminishing returns. Nevertheless, this is also assuming that the amplifier is used to drive a pair of Genesis loudspeakers with its built-in servo-controlled bass amplifier (which also has a DPDS inside, albeit tuned for delivery of bass).

The MDHR adds another eleven members to the team. This extends the ability of the amplifier to drive loudspeakers with impedances of less than 1 ohm. In addition, it adds the ability to deliver more dynamics in the lower midrange and upper bass, and adds detail and extension in the upper frequencies. The lowest bass registers are also enhanced so that even speakers without a built-in servo-controlled bass amplifiers will sound like they are able to play deeper and with more authority.

A resonance control circuitry ensures that the “baton handover” from one team member to the next is handled as smoothly as possible.

This results in increased dynamics from having more current available into lower impedance loads and better micro-dynamics – one listener described it as “having cream in your coffee instead of non-fat soy”.

## A Caution

The MDHR is supplied partially charged-up from the factory. If you already have an MDHR with the GR180, you can use the same MDHR if you upgrade to the GR360, or even the GR-M.

However, if you have an MDHR with your GR360, **DO NOT** use that MDHR with a GR180 without draining it first. This is because the MDHR with the GR360 runs at significantly higher voltage than an MDHR running with the GR180.

## Specifications

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- Power Supply Storage: 160,000 uF
- Input: 20amp Neutrik PowerCon
- Output: 20amp Neutrik PowerCon