

Quad Limiter

# Operation Manual

**B I A M P<sup>®</sup>**

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S Y S T E M S

## INTRODUCTION

The new BIAMP Quad Limiter is an all-purpose, multi-channel limiter /compressor. It has been specifically designed as a cost effective, simple solution to the wide ranging problems of basic limiting, that in the past have required expensive and highly complex equipment. The Quad Limiter is your protection against a variety of audio over-loading problems in normal line level situations.

The BIAMP Quad Limiter will find it's place in portable or fixed sound reinforcement systems, recording studios, monitor systems, broadcast and production uses, and even in musical instrument applications. Simple patching can provide protection to your mixer input-channel as an automatic pad, or to any device with low headroom in the signal path to prevent input overload. Speaker protection (especially for High Frequency Drivers) is easily provided by patching the Quad Limiter before the power amplifiers, in order to control the amount of power delivered to your speakers.

The BIAMP Quad Limiter is designed for maximum simplicity of operation and maintenance. Four independent channels feature front panel threshold control, each with a light emitting diode (LED) to indicate when limiting and compression are occurring. Release-time is varied by means of a screwdriver adjust control, located on the front panel for each channel.

All components are of the highest quality and designed to operate well within their respective rating to assure maximum reliability. The latest high slew rate and low noise technology is incorporated to insure you of the most advanced performance available by anyone's standards.

## FEATURES

1. Four independent channels.
2. Single wide range control to maximize simplicity.
3. Individual compression indicators.
4. Balanced and unbalanced inputs and outputs.
5. Individual release times (screwdriver adjust) 1.5 sec. to 0.15 sec.
6. Series patchable for multi-compressor action.

## WHAT IS A COMPRESSOR/LIMITER?

A compressor/limiter is a device that controls the maximum strength of an electronic signal. When an electronic audio signal becomes too great it will overload devices such as loud speakers, power amplifiers, tape recorders, etc., causing overload distortion. The compressor/limiter is used to prevent these problems.

There are three major factors in compression limiting:

1. Input signal level.
2. Output signal level.
3. Threshold level.

1. The input signal is your sound source, it can be from a mixer, equalizer, electronic crossover, high level microphone, etc.

2. The output signal is the identical signal except you want it controlled in amplitude.

3. The threshold level is the level at which the compressor starts acting or hold down the output level.

## APPLICATIONS AND OPERATION OF THE BIAMP QUAD LIMITER

What is the BIAMP Quad Limiter?

The Quad Limiter is four independent limiters.  
Each limiter has:

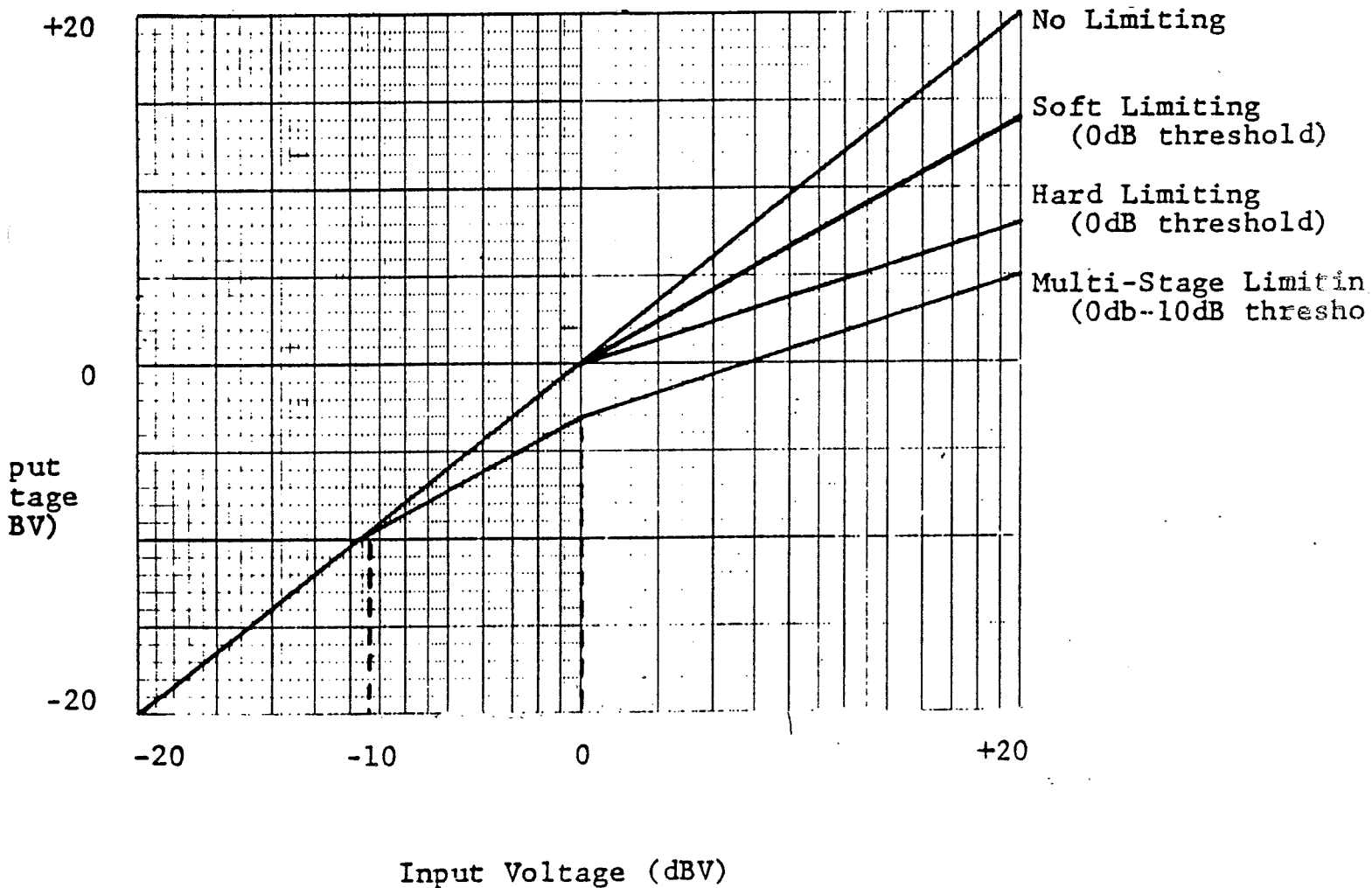
1. Input jacks for the input signal.
2. Output jacks for the output signal.
3. A threshold control, to set the threshold for each limiter.
4. A threshold L.E.D. to tell you that the input signal has reached the threshold level and the output signal is being compressed.
5. A release time adjustment (screwdriver type). For explanation, see page 6.

## SPEAKER AND AMPLIFIER PROTECTION (CONT'.)

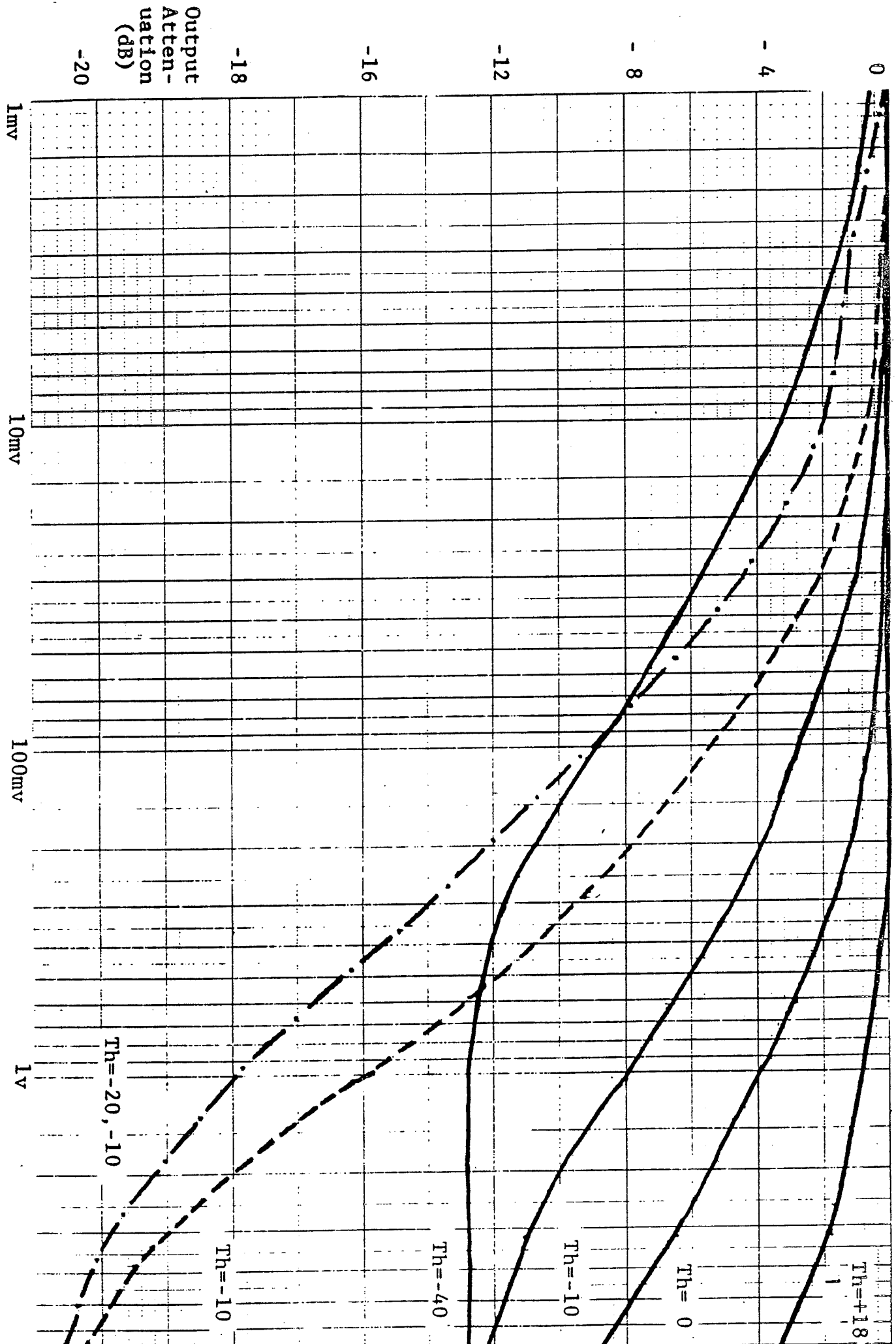
### (C) MULTI-STAGE LIMITING

Multi-stage limiting is desirable in most club applications. It limits transients or peaks in a musical manner while still preventing clipping.

1. Set up your Quad Limiter as a hard limiter (see page 4).
2. Adjust channel 1 threshold control to 10dB below channel 2 threshold. Now, as strong instrument signals reach channel 1's threshold, they are compressed softly. Any unusually strong peaks that can go beyond the first limiter are further compressed by the second limiter.



Input/Output Characteristics for Various Limiting Modes



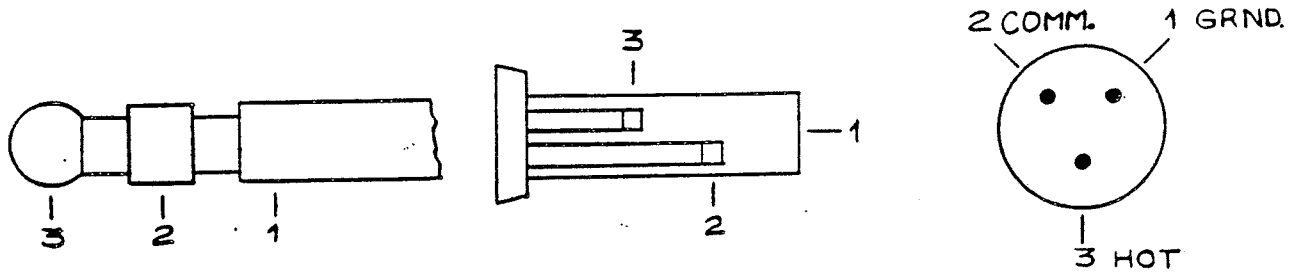
Input Voltage

Output Attenuation (dB)

— Soft Limiting (Single Stage)

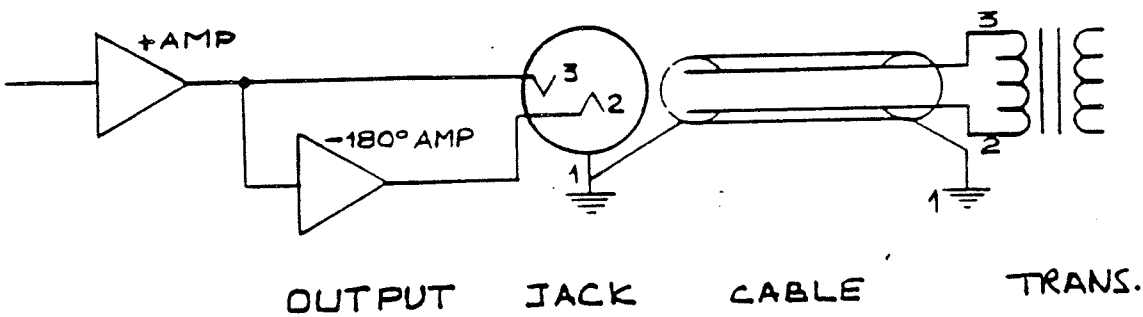
- - - - Hard Limiting (Dual Stage)

HOW TO USE TRANSFORMER BALANCED LINES WITH TRANSFORMERLESS BALANCED OUTPUT



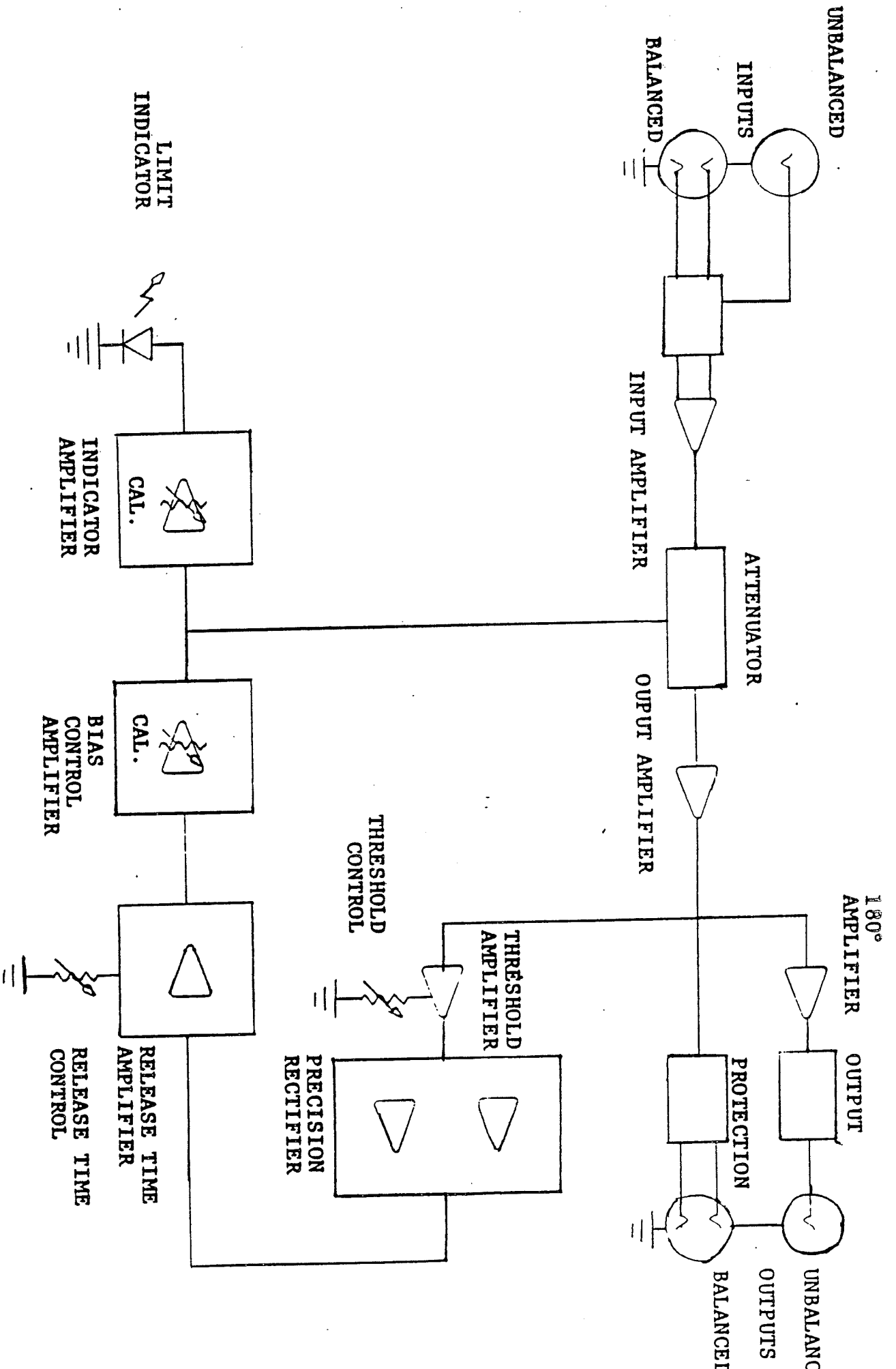
The outputs of the Quad Limiter can drive any line transformer 600 ohm up. No termination is necessary; because of the high output capability of the limiter (+24dBm), most line transformers will saturate and distort before the output amplifiers clip. Therefore, note the capability of your transformers for setting your maximum line levels.

Driving more than one transformer is okay as long as the load does not go below 600 ohms.



DRIVING THE QUAD LIMITER BALANCED INPUTS WITH THE LINE TRANSFORMERS

When driving the inputs with a transformer, termination of the driving transformer is advisable. A 680 ohm to 2,200 ohm 1/4 Watt resistor soldered inside the male stereo phone plug will do the job. Simply unscrew the housing on the phone plug and solder the resistor across the hot/common (3 and 2) terminals. Do not allow the resistor leads to touch the ground shield or hum may result. If the driving transformer is of studio quality, a 680 ohm value will give the lowest noise. If a standard transformer is used, a 2.2k value will give the least loss due to reduced transformer loading.



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