

A M P E A K L I M I T E R

V E R S I O N **II**



Dorrough Electronics

A M P E A K L I M I T E R C A R D

The input to the AM Peak Limiter is fed from the combined outputs of the compressor cards. The input level is controlled by R_2 .

Z_1 Section 1 is an inverting buffer amplifier which provides a low impedance input to the following circuitry.

Z_1 Section 2 is an inverting summing amplifier with two inputs. Input #1 is through summing resistor R_6 . The second input is through hi-pass network $C_2 R_7$. R_5 , termed as the "brightness" control, controls the input level to this network. In the maximum counter-clockwise position, no signal is presented to the input of the hi-pass network, thus the resultant equalization is "flat." As the "brightness" is rotated in a clockwise direction, an increased signal appears at the input of the hi-pass filter, allowing additional high-frequency energy to be present at the input of the summing amplifier. Maximum clockwise rotation boosts the high frequency amplitude by 14 dB at 9 kHz.

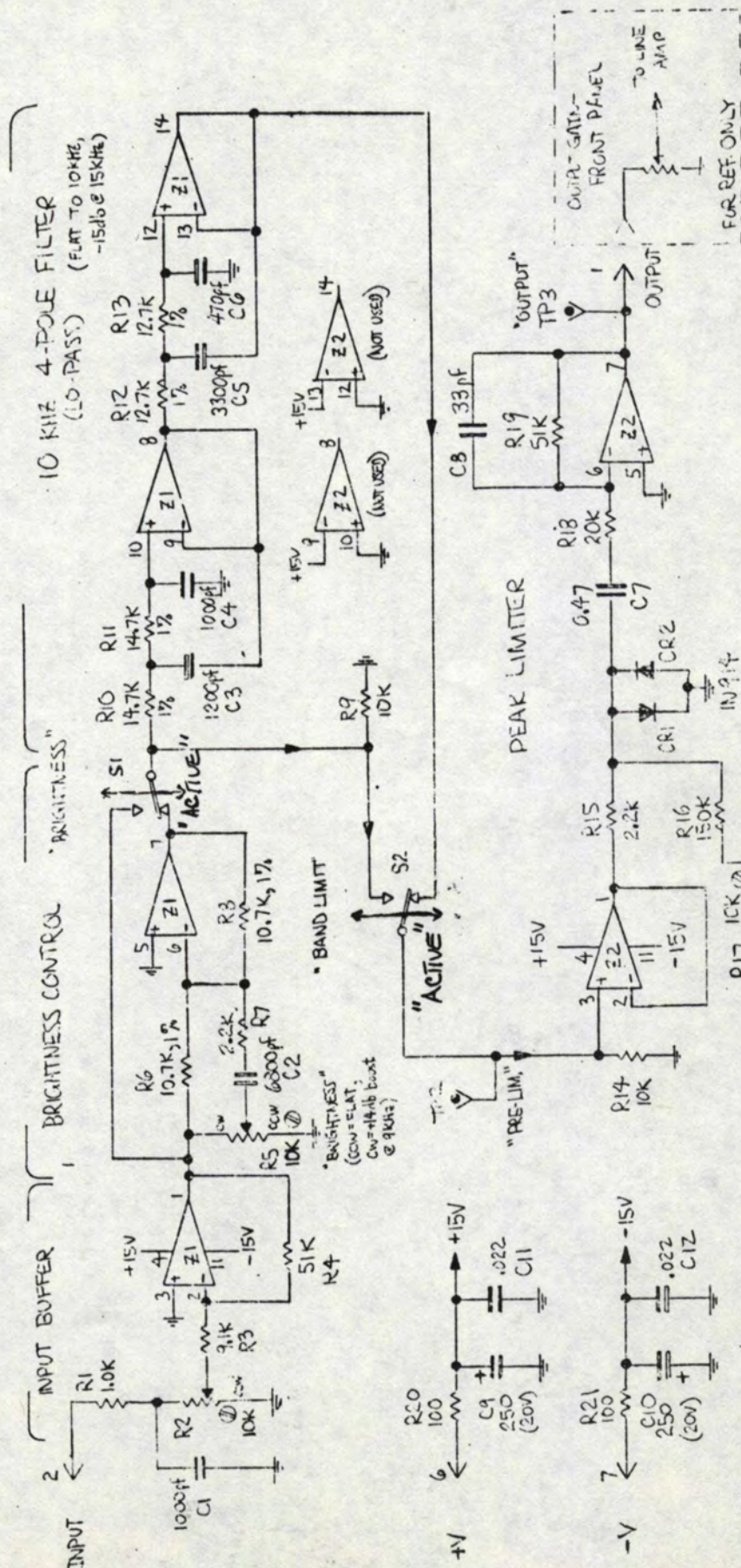
A comparison of the brightness attained by this circuit with various levels of boost can be made by switching the "brightness" switch (S_1) in and out of the active position. If the "brightness" feature is not desired, its function can be defeated by switching the brightness switch (S_1) out of the "active" position.

Z_1 Section 3 and Z_1 Section 4 are each a two-pole VCVS low pass filter. In combination they result in a four-pole Butterworth filter, characterized as having a maximally flat amplitude response, with a 3 dB point at 10 kHz.

Z_2 Section 1 is a non-inverting buffer amplifier, which presents a low impedance input to series resistor R_{15} which feeds diodes CR_1 and CR_2 . These diodes draw negligible current with input signals below .5 volts peak. As the signal level increases, the current flow through these diodes increases at an accelerated rate. The increase in current flow through R_{15} results in an increased voltage drop, and peak limiting is experienced. (The output of R_{15} does not exceed the level of 1 volt even with input signals of up to 26 dB above the threshold of the diode action.) It is important that this function is understood, as the adjustment of the input and symmetry controls plays an important role in the resultant sound quality of the final product.

Z_2 Section 2 is an inverting buffer amplifier which connects to the output of the series resistor (R_{15}) through single-pole high-pass filter $C_7 R_{18}$, which has a 3 dB point at 17 Hz. Feedback network $R_{19} C_8$ limits the high frequency response at a 3 dB point of 85 kHz.

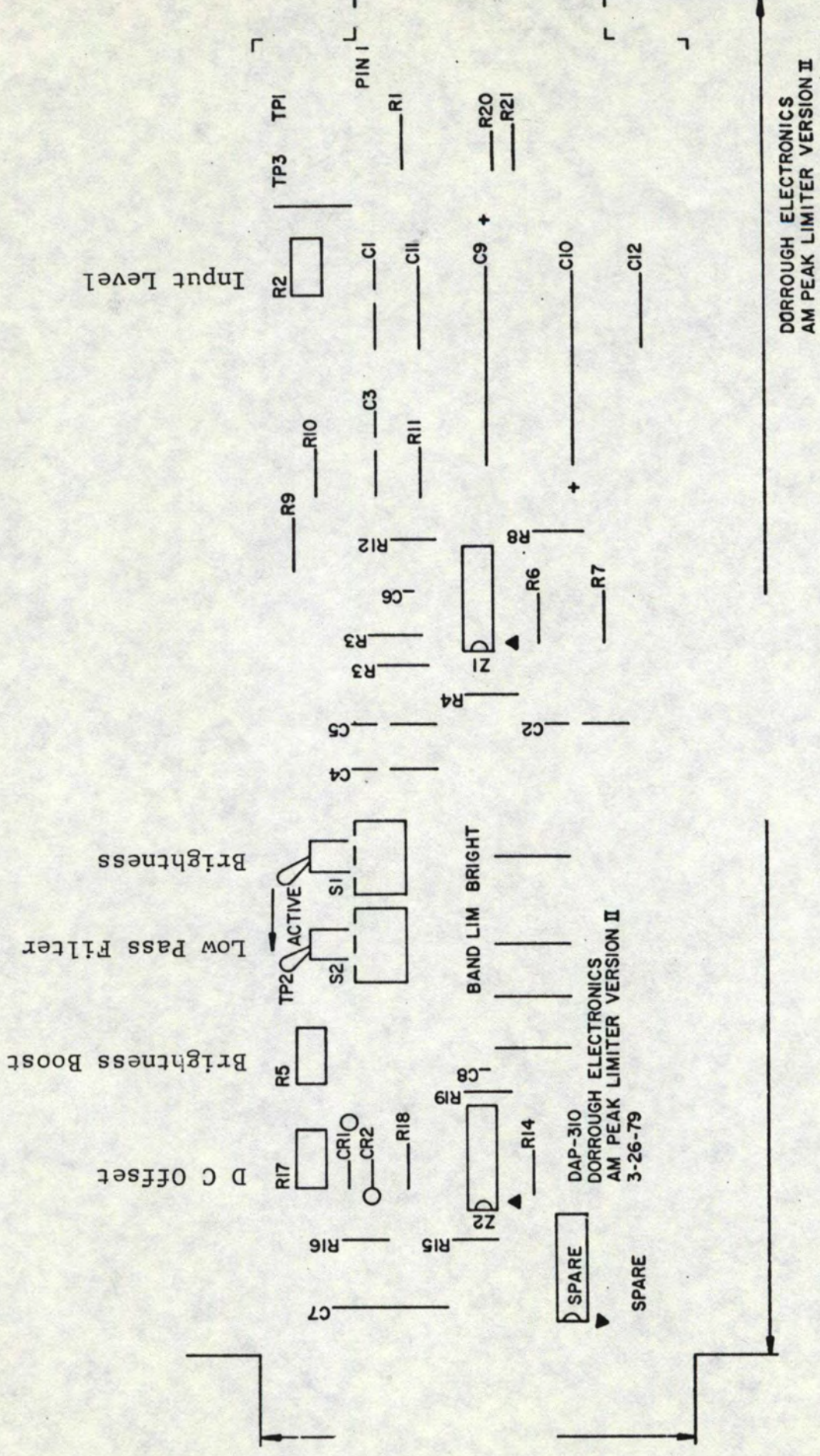
The output of the limiter board is fed through the output gain control, located on the front panel, to the line amplifier-power supply board.



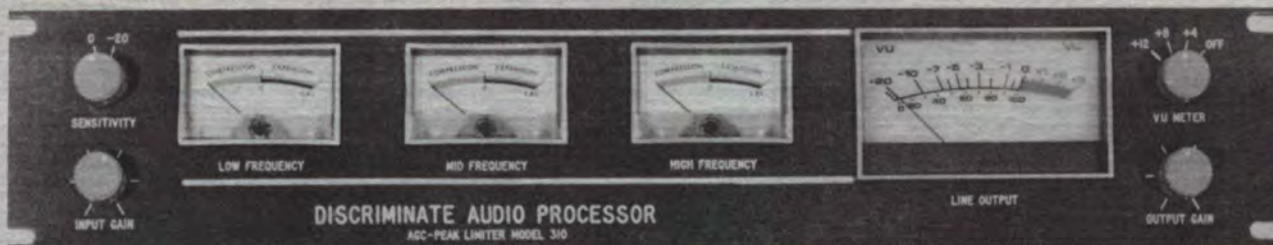
NOTES (UNLESS OTHERWISE SPECIFIED)

1. RESISTORS (VALUES IN OHMS): 1/4", 5%
2. CAPACITORS (VALUES IN μ F):
3. AMPLIFIERS: TL074. Z3 IS A SPARE FOR SUBSTITUTION OF Z1 OR Z2 AS REQUIRED.
4. LAST DESIGNATORS: R21, Z3, C12, CR2, TP3

DORROUGH
 AM PEAK LIM,
 VERS. II
 3-9-79 KJ
 3-13-79 KJ
 3-21-79 KJ



DORROUGH ELECTRONICS
AM PEAK LIMITER VERSION II



DORROUGH ELECTRONICS

Dorough Electronics introduced two new additions to the Discriminate Audio Processor at the 1979 NAB Show. The following is a brief description of each new card.

AM PEAK LIMITER VERSION II

The Am Peak Limiter Version II is offered as a retrofit for use in existing AM Processors. Features of this new board include a high frequency "Brightness" control and a four pole Butterworth low pass filter. The use of this board will maximize the effectiveness of the Discriminate system as the practice of altering the outputs of the Discriminate stages to compensate for deficiencies of antenna systems has an adverse effect upon the AGC range of the DAP, and depending on the extent of misadjustment, the action of the DAP will take on the qualities of a wide band processor.

The use of this new board allows for equalization following the Discriminate stages but prior to the peak limiting action of this device. The arrangement allows for increased intelligibility by increasing high frequency energy without disturbing proper Discriminate channel adjustments. Available for \$100.00

PINK NOISE GENERATOR

The Pink Noise Generator card allows easy setup of both input and output settings of the three independent limiting channels. This card was designed to fit into the remaining unused edge connector on the left side of the DAP.

The Generator has a three position switch which allows the following functions. Position #1 Off (for normal operation); Position #2 Removes Input (feeds pink noise into the Discriminate channels and is used in setting the three input levels); and Position #3 has the same input feature as position #2 and in addition feeds the output sum in phase opposition so that the three output levels can be nulled for optimum adjustment. These adjustments allow for the output of the DAP to have the spectral distribution as that which appears at its input.

For the Pink Noise Generator contact Conger Electronics, 16949 Knollwood Drive, Granada Hills, California 91344. The card is priced at \$125.00.

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