

This manual is for the version that uses NE5533 14 Pin Output Integrated Circuits

# **DA-8 & DA-16 Distribution Amplifier**





## INSTALLATION AND OPERATION

The "Audio-Metrics" distribution amplifier combines solid state electronics and functional flexibility in one small package. A single high quality audio op amp provides balanced output and individual gain adjustments for each channel.

Excellent isolation is provided between outputs. Each balanced channel, regardless of level set and load, is unaffected by the other channels. Audio sources can be routed to multiple locations with various level requirements and impedances while maintaining the integrity of the signal quality throughout.

The distribution amplifier is available in a single channel, 8 output mono version, or dual channel, 16 output version.

### Mounting

The DA-8 and DA-16 occupies only 1<sup>3</sup>/<sub>4</sub> inch of height in a 19 inch rack. Since almost no heat is generated, little ventilation is necessary. However, avoid baking the unit by mounting it above a very hot piece of equipment.

### Connections

The units are primarily designed for balanced inputs and outputs. The input ground is connected to the chassis and power supply at a single point.

If unbalanced lines are used, tie the unused input terminal to ground. But, do not tie the unused output terminal to ground. Take the output between one output terminal and the input ground terminal.

Although the outputs are short circuit proof, operating into less than a 600 ohm load is not recommended. The input is bridging (high impedance) and will not load down any source.

### Operation

Controls consist simply of a front panel power switch and channel gain adjustments. Normal operating ranges are 0dBm input and +10dBm output. Higher levels can cut dynamic range by operating too close to the clipping point. Adjust each output to the desired level, keeping clipping in mind.

## CIRCUIT DESCRIPTION

### Power Supply:

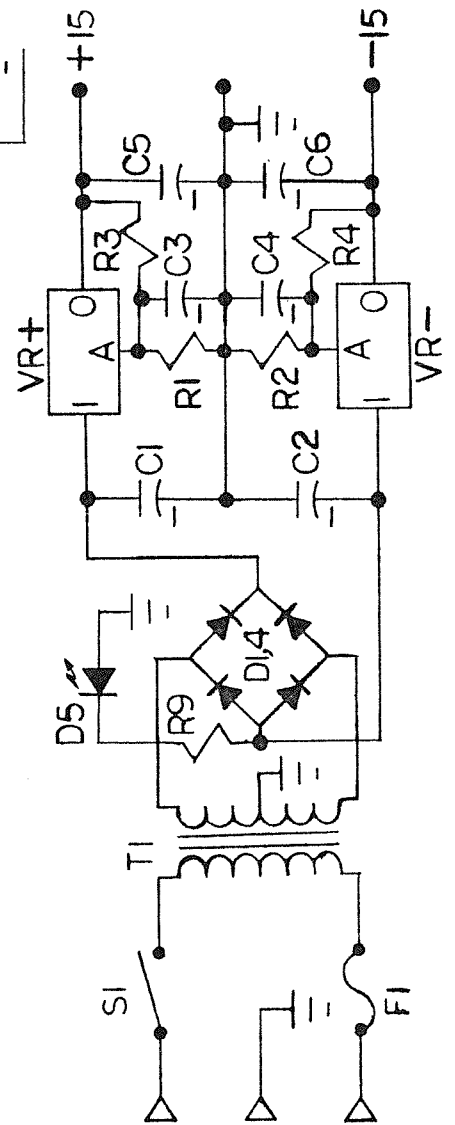
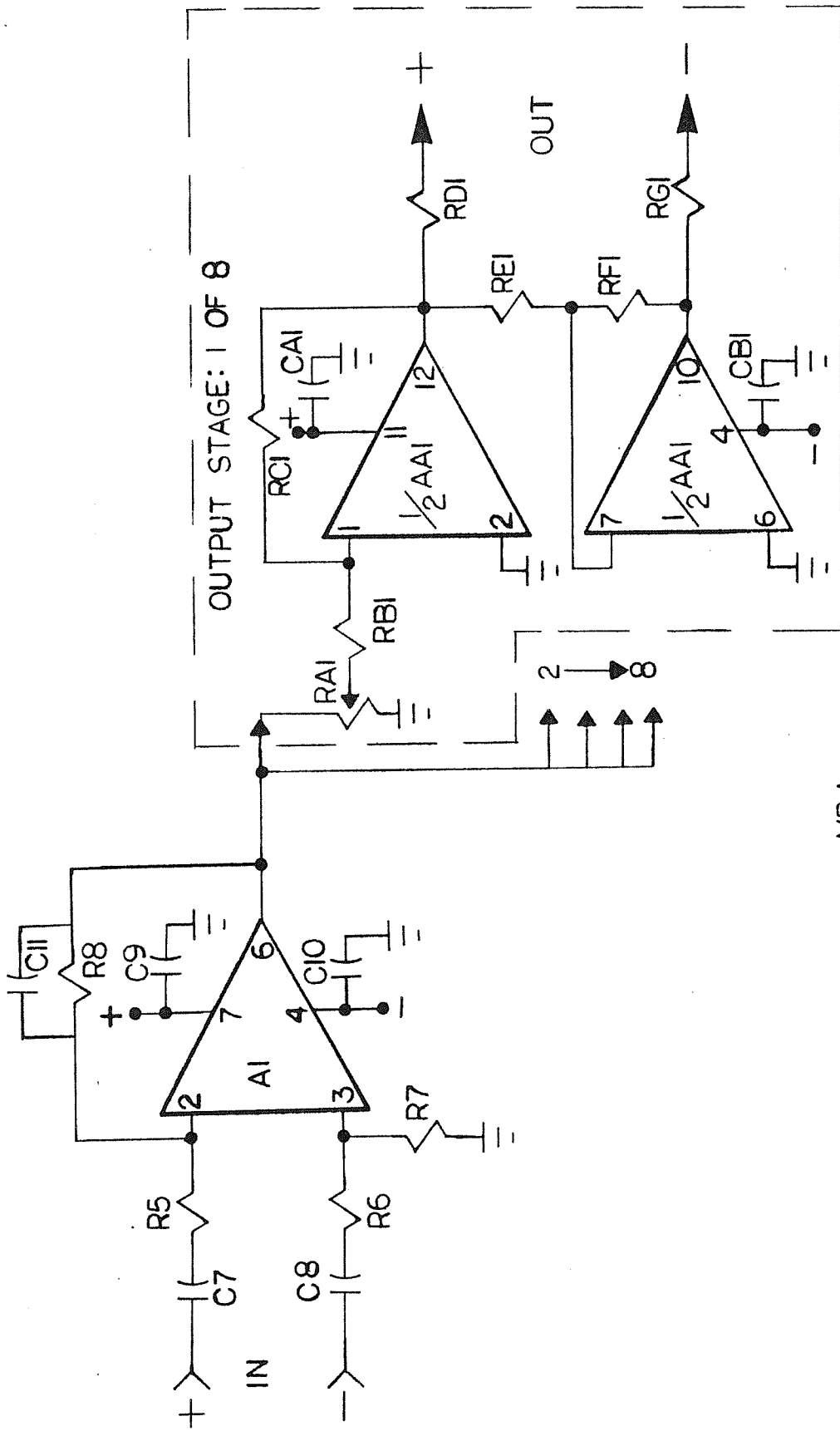
A large circuit board mounted transformer and two, three terminal regulators provide DC power. In the DA-16, one supply is used to power both channels.

### Input Stage:

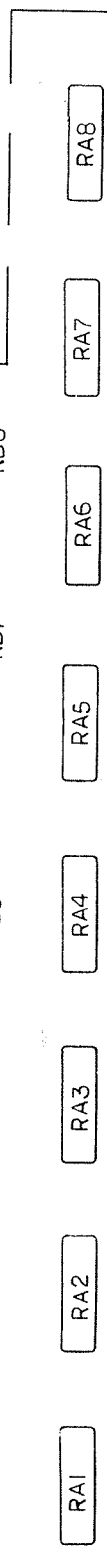
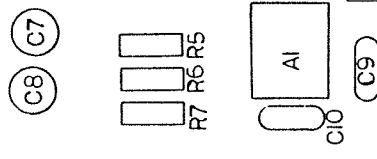
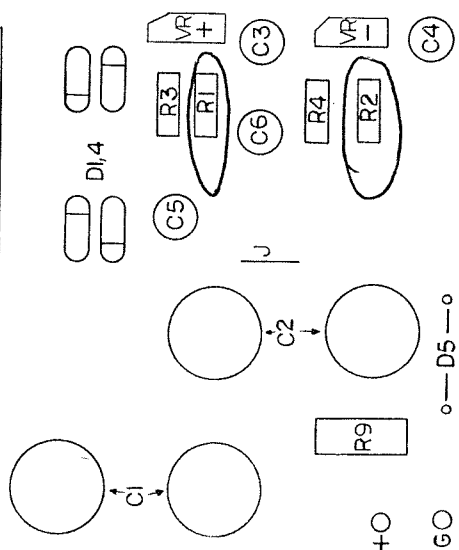
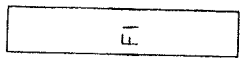
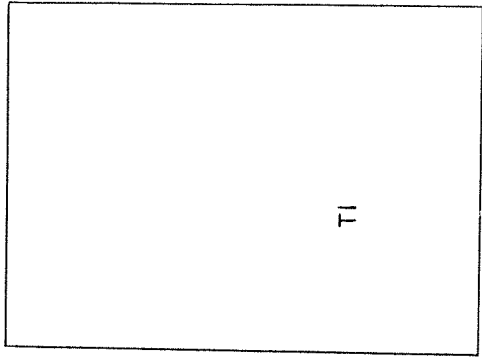
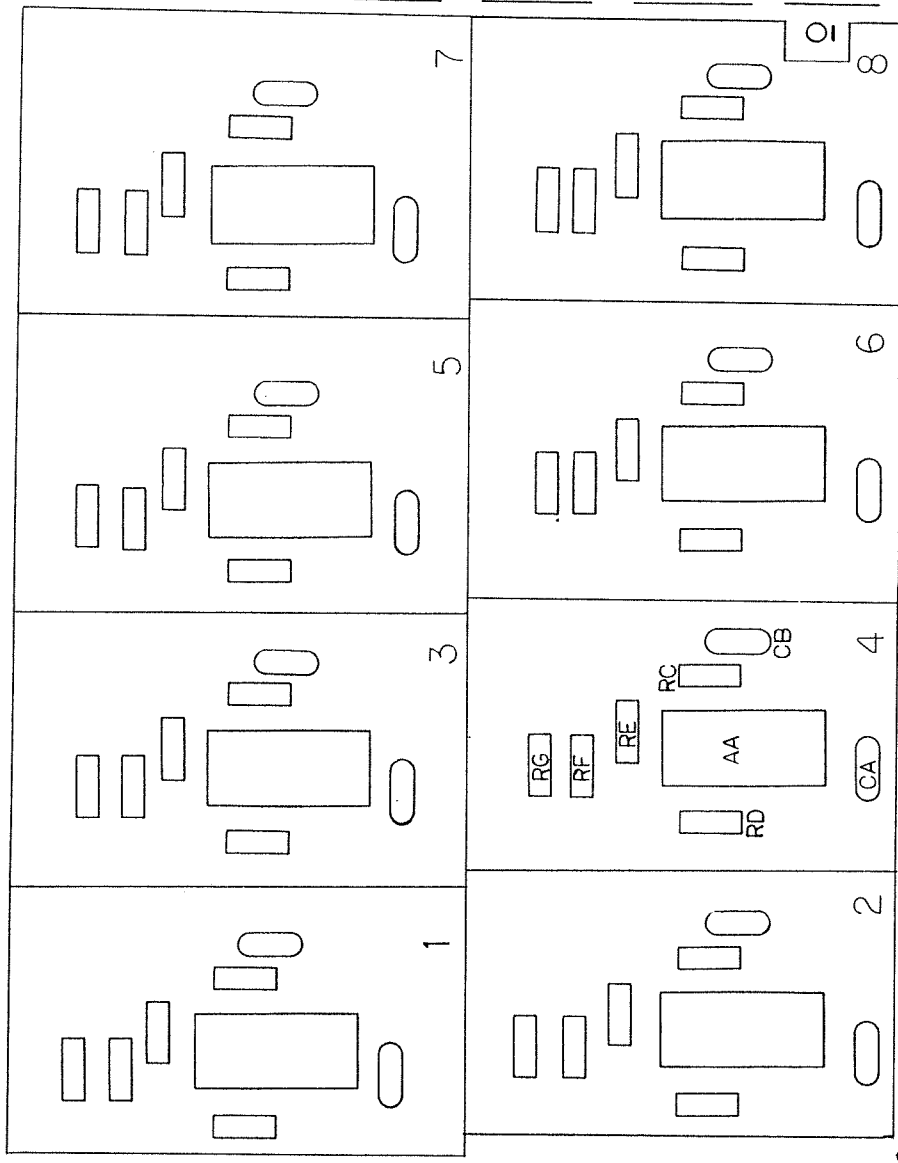
A high speed Bi-FET op amp is used as a differential amp to drive the output buss. This FET input stage does not exhibit the base emitter diode detection characteristics of standard bipolar integrated circuits; providing RFI immunity without resorting to transformers which add distortion.

### Output Stages:

The output buss feeds gain controls for each channel which attenuates the signal to a 20dB gain stage;  $\frac{1}{2}$  of an NE 5533. This creates one side of the output signal. The other half of the 5533 operates as a unity gain inverter to create the other side of the balanced output. This scheme almost doubles the available output voltage to create the high clipping level necessary in a distribution amplifier. The 5533 integrated circuit is utilized for its high speed, high output and low distortion capabilities.



W B G



## DISTRIBUTION AMP PARTS LIST

All resistor values are in ohms and are ¼W carbon film, unless noted.

R1	1300	1% mf
R2	1300	1% mf
R3	118	1% mf
R4	118	1% mf
R5	20K	
R6	20K	
R7	20K	
R8	20K	
R9	2.2K	5% ½W
RA	10K	POT.
RB	10K	
RC	100K	
RD	100	
RE	10K	
RF	10K	
RG	100	

C1	1000mF 35V X2
C2	1000mF 35V X2
C3	10mF 35V
C4	10mF 35V
C5	15mF 50V low leakage
C6	15mF 50V low leakage
C7	2.2mF NP 50V
C8	2.2mF NP 50V
C9	.1 disc
C10	.1 disc
C11	56 PF disc
CA	.1 disc
CB	.1 disc

D1-4	IN4001
D5	LED

A1	LF351
AA	5533
VR+	LM317MP
VR-	LM337MP

S1	SPDT 125V
F1	¼A Slo Blo
T1	PC-34-700

## DISTRIBUTION AMP SPECIFICATIONS

INPUT IMPEDANCE	— 40K Ohms, Balanced Bridging
GAIN	— 0 to +20dB
OUTPUT LEVEL	— +25dBm Max. Into 600 Ohms
OUTPUT IMPEDANCE	— 200 Ohms, Balanced
FREQ. RESPONSE	— $\pm .1$ dB 20Hz to 20kHz
THD @+18dBm	— .01% Max. 20Hz to 20kHz
SMPTE IM @+18dBm	— .01% Max.
MAXIMUM INPUT LEVEL	— +20dBm
COMMON MODE REJECTION	— 60dB @ 60Hz Min.
NOISE	— Min. 90dB Relative 0dBm Input
SLEW RATE	— 13V/Micro Sec.
OUTPUT CHANNEL ISOLATION	— Infinite
DIMENSIONS	— 19" Rack Mount 1 $\frac{3}{4}$ " High 6" Deep

### Warranty

Radio Systems warrants for one year from date of purchase, parts and labor on any unit returned to us for repair. Please ship the unit prepaid with a note detailing the malfunction and reason for return. Repair and return of the unit will be made promptly. Within the warranty period, there is no charge for this service on units which show no sign of misuse or unauthorized alterations.





***RADIO SYSTEMS INC.***

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