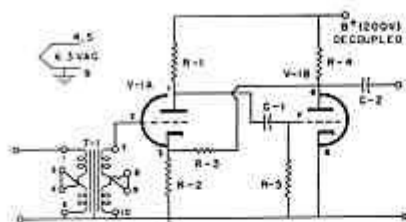


# AUXILIARY HIGH FIDELITY EQUIPMENT



PRE-AMPLIFIER

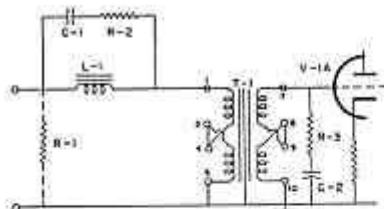


The pre-amplifier shown is suitable for low-level amplification where high gain (approx. 60 db.), low distortion, and low noise are required. The use of degenerative current and voltage feedback minimizes distortion and provides excellent frequency characteristics. (See graph above.) The type 12AY7 tube is especially designed for low hum, noise, and microphonics. The components have been selected to permit construction in ultra-compact form. (Note use of A-10 transformer and minimum number of condensers.) Where ambient magnetic fields are high, UTC type A-11 may be used to insure additional shielding.

## PARTS LIST

T-1	A-10 (A-11)
R-1	50 K, 1 W
R-2	680 ohms
R-3	68 K
R-4	30 K, 1 W
R-5	10 Meg.
C-1	.02 Mfd.-400 V.-paper
C-2	.05 Mfd.-400 V.-paper

All resistors 10%, 1/2 watt except where noted otherwise.



VARIABLE RELUCTANCE EQUALIZER



turnover is shown below. Increased roll-off may be obtained through use of resistor R-1. Cartridge manufacturers' recommendations should be considered if this resistor is used.

## PARTS LIST

L-1	HQA-15
T-1	A-10 (A-11)
R-1	See Text
R-3	150 K
C-2	.04 Mfd.-150 V.-paper

Values for R-2 and C-1  
Turnover Freq. R-2 C-1

450 c.p.s. (Shown)	15 K	.03 Mfd.
350	12 K	.04 Mfd.
550	18 K	.02 Mfd.

All resistors 10%, 1/2 watt except where noted otherwise.

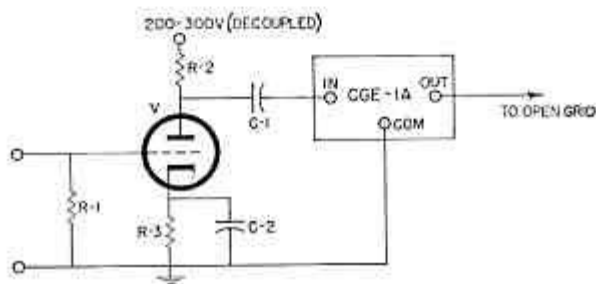
The basic circuit at the left may be incorporated into an excellent equalizer for the variable reluctance type pickup. The HQA-15 is compact and has low hum pickup. The inductor-capacitor network provides a characteristic much closer to that desired than do simple RC circuits. The characteristic for a 450 cycle turnover is shown below. Increased roll-off may be obtained through use of resistor R-1. Cartridge manufacturers' recommendations should be considered if this resistor is used.

## CONTINUOUSLY VARIABLE EQUALIZER

### Parts List

R-1	1 Meg. 1/2 W.
R-2	22K, 1 W.
R-3	1K, 1/2 W.
C-1	0.1 Mfd.-400 V.-paper
C-2	50 Mfd.-10 V.-elect.

V is 6J5, 6C5, 6C4, 1/2 6SN7, 1/2 12AU7, etc.



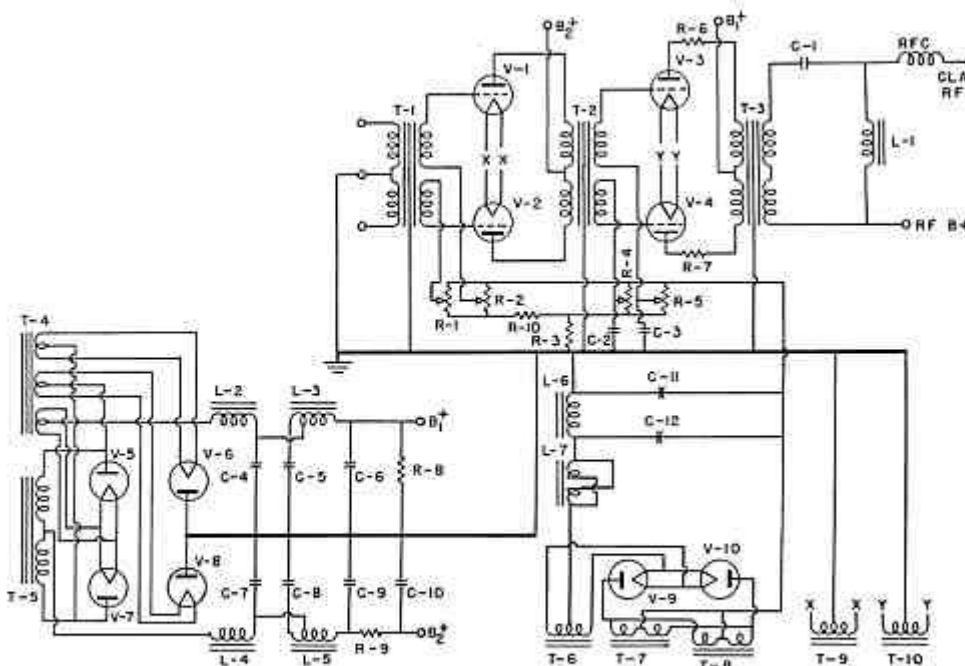
In addition to the equalization required as correction for deliberately introduced response variations (e.g., recording characteristics, etc.), it is desirable to control the relative response at the ends of the spectrum to compensate for individual tastes or deficiencies in components such as pick-ups and loudspeakers.

The UTC CGE-1A equalizer provides continuously variable equalization up to 15 DB in either direction at both the low end and the high end. (See page 17.) The simple circuit to the left will provide both the extra amplification (18 DB) and proper source impedance for optimum operation of the equalizer. Since a D.C. path is provided through the equalizer, no grid-leak is required for the succeeding stage.

## 1 KW BROADCAST MODULATOR

### PARTS LIST

T-1	LS-18
T-2	LS-48
T-3	LS-691
T-4	LS-121Y
T-5	LS-185
T-6	LS-80
T-7, 8	CG-316
T-9	LS-84
T-10	CG-125
L-1	LS-104A
L-2	LS-105
L-3, 6, 7	LS-96
L-4	LS-92
L-5	LS-93
V-1, 2	845
V-3, 4	849
V-5, 6, 7, 8	872
V-9, 10	866
C-1	4 Mfd.
C-2, 3, 11, 12	20 Mfd.
C-5, 8	1 Mfd.
C-4, 6, 7, 9, 10	2 Mfd.
R-1	250 ohms, 5 W
R-3	275 ohms, 200 W
R-4, 5	125 ohms, 25 W
R-6, 7	50 ohms, 10 W
R-8	50 K, 200 W
R-9	1500 ohms, 100 W
R-10	500 ohms, 10 W



The circuit above shows a 1000 watt modulator suitable for high-fidelity broadcast service. The use of a duplex plate supply permits the use of a Class A driver stage with resulting low distortion. Although a common bias supply is used, provision is made for adjusting the bias of each tube independently. The input transformer matches the 845 grids to a high level 500 or 600 ohm line.