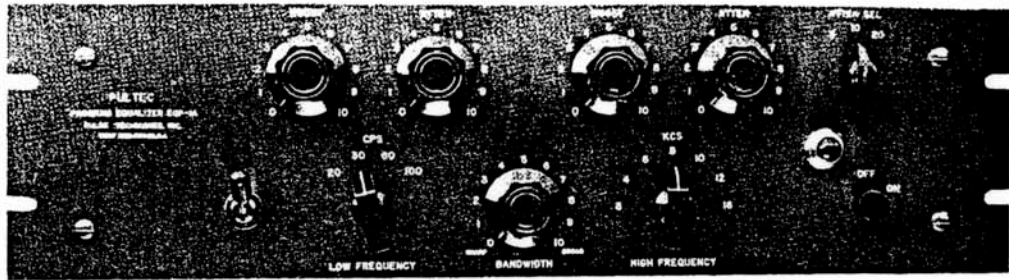


# PROGRAM EQUALIZER

**PULTEC®**

MODEL

**EQP-1A**



**USED** BY RADIO STATIONS, RECORD COMPANIES  
AND RECORDING STUDIOS . . .

**TO** ADD THAT "FINAL TOUCH" TO THE BALANCE  
OF GOOD PROGRAM MATERIAL, AND TO  
GREATLY

**IMPROVE** THE QUALITY OF PROGRAM MATERIAL PRE-  
VIOUSLY RECORDED ON EQUIPMENT OF  
INFERIOR QUALITY OR DIFFERING CHAR-  
ACTERISTICS.

The wide range of equalization curves provided makes it possible to boost the very low or very high frequency notes of the orchestra without "muddying up" the middle register instruments. Continuously variable controls permit changing the amount of equalization on sustained tones without steps in level, or noise. All controls are clickless and a key permits cutting the equalizer in and out on cue.

**NO LOSS:** Passive equalizer  
plus push-pull amplifier.

## **VERSATILE:**

4 low } **Boost** frequencies.  
7 high }

4 low } **Attenuate** frequencies.  
3 high }

## **SHAPE CONTROL:**

High boost curves variable sharp to broad.

**IN-OUT KEY:** Switches equalization in and out without clicks or changes in level.

## **Specifications**

**20, 30, 60, 100 cps** shelf boost, 0 to 13.5 db.

**20, 30, 60, 100 cps** shelf attenuate, 0 to 17.5 db.

**3, 4, 5, 8, 10, 12, 16 kcs** peak boost, 0 to 18 db.

**5, 10, 20 kcs** shelf attenuate, 0 to 16 db.

**INPUT TRANSFORMER:** 600, 250 and 150 ohms.

### **OUTPUT TRANSFORMER:**

For use into loads of 600, 250 and 150 ohms.

**NOISE:** 92 db below + 10 dbm.

**DISTORTION:** 0.15% at + 10 dbm into 600 ohms.

**LOSS:** None. Insertion loss restored by amplifier.

**AMPLIFIER:** Flat, 20 cps to 20 kcs; +0, -1 db.

**TUBES:** 1 each ECC-82/12AU7, ECC-83/12AX7, 6X4 included.

**POWER REQUIRED:** 117 volts, 50/60 cps, 25 watts.

**PANEL SIZE:** 5¼" x 19". Depth behind panel 7¾".

**PANEL FINISH:** Pultec blue-gray baked enamel. Engraved.

**MOUNTING:** Standard EIA rack mount.

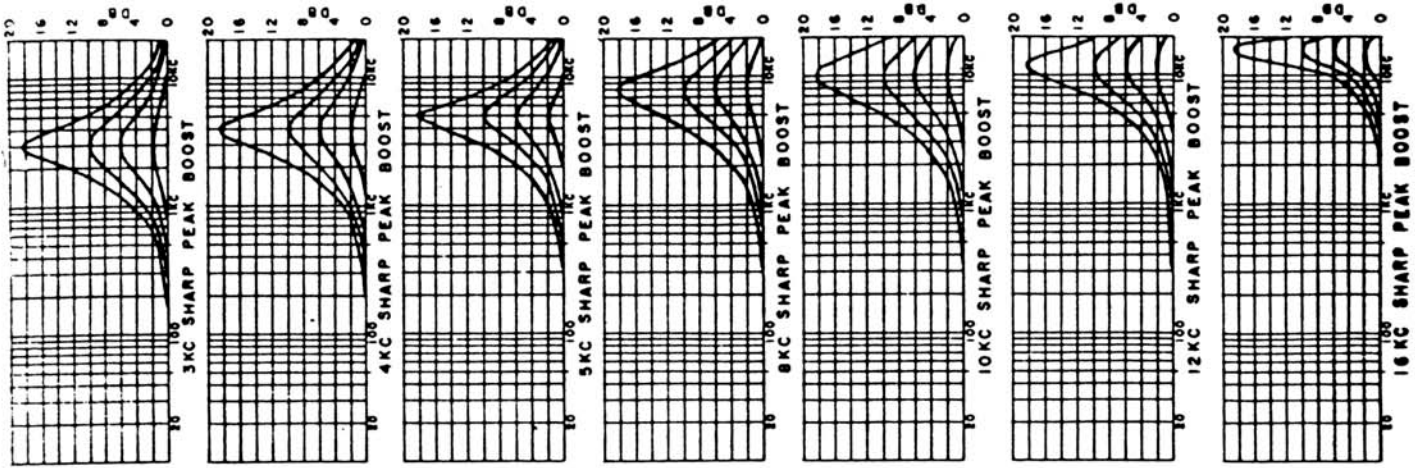
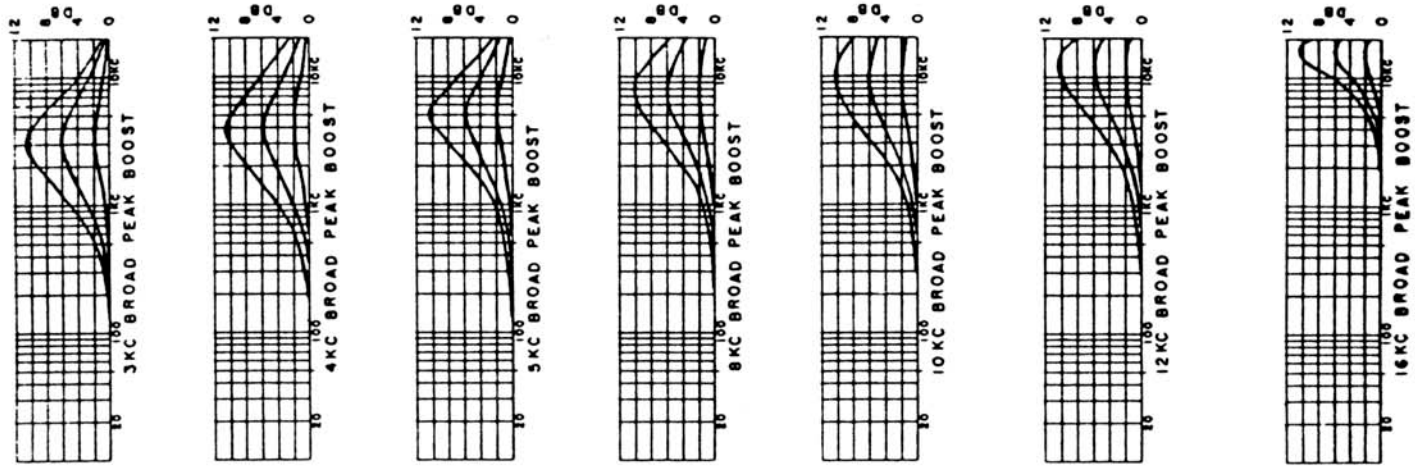
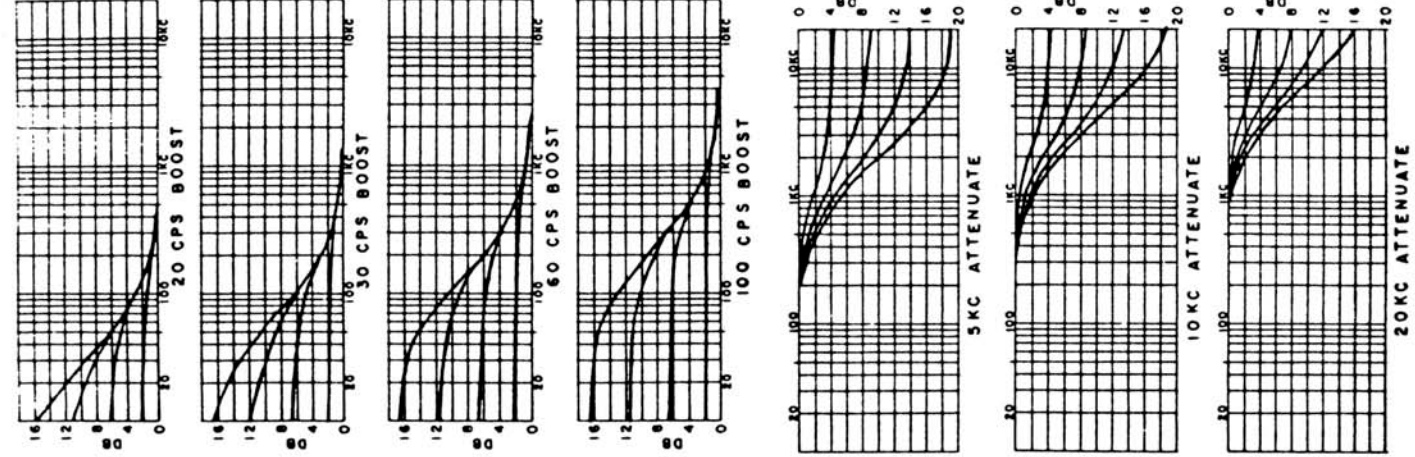
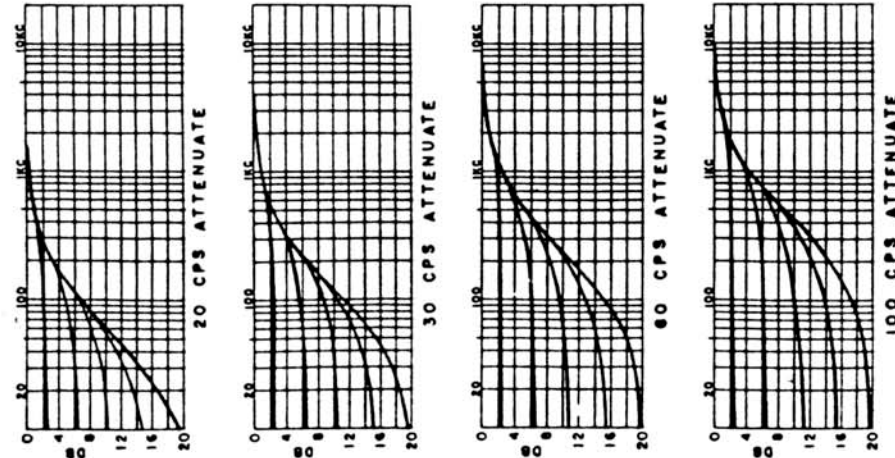
**NET WEIGHT:** 15 pounds.

*Licensed under patents of the Western Electric Company*

**PULSE TECHNIQUES, INC.**

1411 PALISADE AVE., WEST ENGLEWOOD, NEW JERSEY

201 TEANECK 7-2575



The boost, attenuate and bandwidth controls are continuously variable. Therefore, the curves in the above families represent typical settings, not steps.

PULTEC

MODEL EQP-1A

PROGRAM EQUALIZER

INSTALLATION AND OPERATING INSTRUCTIONS  
PULTEC MODEL EQP-1A3 PROGRAM EQUALIZER

GENERAL

THE PULTEC MODEL EQP-1A3 PROGRAM EQUALIZER CONSISTS OF A PASSIVE EQUALIZER, AN AMPLIFIER AND SELF CONTAINED POWER SUPPLY. THE AMPLIFIER RESTORES THE INSERTION LOSS OF THE EQUALIZING NETWORK, THUS PROVIDING A NO LOSS, NO GAIN UNIT.

INSTALLATION

INPUT IMPEDANCE: 600 OHMS, MATCHING, TRANSFORMER INPUT.  
CAN BE STRAPPED FOR 250 OR 150 OHMS.

OUTPUT IMPEDANCE: TRANSFORMER, FEEDS A 600 OHM LOAD.  
CAN BE STRAPPED TO FEED LOADS OF  
300 OR 150 OHMS.

WHEN INSTALLING IN AN UNBALANCED CIRCUIT,  
STRAP ONE INPUT TERMINAL AND ONE OUTPUT  
TERMINAL TO THE CHASSIS GROUND TERMINAL.

AVERAGE INPUT LEVEL: OPTIMUM RANGE -15 DBM TO +8 DBM.

MAXIMUM PEAK OUTPUT LEVEL: +21 DBM.

PHASE: SEE ACCOMPANYING SHEET FOR PHASE CONNECTIONS  
(IMPORTANT IN MULTI-CHANNEL SYSTEMS).

POWER SUPPLY: 117 VOLTS, 50/60 CPS, 25 WATTS.

OPERATION

THE "CPS" SELECTOR SWITCH DETERMINES THE CURVE ON WHICH THE LEFT HAND "BOOST" AND "ATTEN" CONTROLS ARE EFFECTIVE. EITHER THE BOOST CONTROL OR THE ATTENUATE CONTROL SHOULD BE OPERATED AS REQUIRED. DO NOT ATTEMPT TO BOOST AND ATTENUATE SIMULTANEOUSLY ON THE LOW FREQUENCIES.

THE "KCS" SELECTOR SWITCH IN THE CENTER OF THE PANEL DETERMINES THE CURVE ON WHICH THE ADJACENT "BOOST" CONTROL IS EFFECTIVE. THE "KCS" SWITCH ON THE RIGHT SIDE OF THE PANEL SELECTS THE CURVE ON WHICH THE ADJACENT "ATTEN" CONTROL OPERATES. CONSEQUENTLY, IT IS PRACTICAL, AND SOMETIMES VERY DESIRABLE, TO OPERATE THE HIGH FREQUENCY BOOST AND ATTENUATE CONTROLS SIMULTANEOUSLY. FOR EXAMPLE, IT MAY BE DESIRED TO ROLL OFF ON THE 20 KCS ATTENUATE CURVE AND ALSO TO BRIGHTEN THE SIGNAL SOMEWHAT AT A LOWER FREQUENCY BY USING THE BOOST CONTROL.

THE "BANDWIDTH" CONTROL ADJUSTS THE WIDTH OF THE HIGH FREQUENCY BOOST CURVES. THIS BANDWIDTH CONTROL IS CONTINUOUSLY VARIABLE FROM SHARP TO BROAD.

OPERATING THE KEY SWITCH AWAY FROM THE "IN" POSITION IS EQUIVALENT TO RETURNING ALL BOOST AND ATTENUATE CONTROLS TO THEIR ZERO POSITIONS. THE AMPLIFIER REMAINS IN THE CIRCUIT.

## TUBES & POTENTIOMETERS IN PULTEC EQUALIZERS

The Types ECC-82 and ECC-83 tubes are equivalent to the 12AU7 and 12AX7 respectively. The manufacturers of these tubes claim, and our experience confirms, that the ECC series average substantially lower hum and microphonics than the 12AU7 and 12AX7.

### MODEL EQP-1A MODEL EQP-1A3

The Low Boost control is Allen-Bradley Type JA-1031. This is a 10,000 ohm potentiometer with "Audio" or Logarithmic taper.

The Low Attenuate control is Allen-Bradley Type JA-1041 or Ohmite Type CA-1041. This is a 100,000 ohm potentiometer with "Audio" or Logarithmic taper.

The High Boost control is Allen-Bradley Type JU-1031 or Ohmite Type CU-1031. This is a 10,000 ohm potentiometer with "Linear" taper.

The High Attenuate control is Allen-Bradley Type JU-1021 or Ohmite Type CU-1021. This is a 1000 ohm potentiometer with "Linear" taper.

The Bandwidth control is Allen-Bradley Type JU-2521 or Ohmite Type CU-2521. This is a 2500 ohm potentiometer with "Linear" taper.

### MODEL EQH-2

The Low Boost control is Allen-Bradley Type JA-5031. This is a 50,000 ohm potentiometer with "Audio" or Logarithmic taper.

The Low Attenuate control is Allen-Bradley Type JA-2541 or Ohmite Type CA-2541. This is a 250,000 ohm potentiometer with "Audio" or Logarithmic taper.

The High Boost control is Allen-Bradley Type JU-5031 or Ohmite Type CU-5031. This is a 50,000 ohm potentiometer with "Linear" taper.

The High Attenuate control is Allen-Bradley Type JU-5021 or Ohmite Type CU-5021. This is a 5000 ohm potentiometer with "Linear" taper.

### MODEL MEQ-5

The Low Peak control is Allen-Bradley Type JU-2521 or Ohmite Type CU-2521. This is a 2500 ohm potentiometer with "Linear" taper.

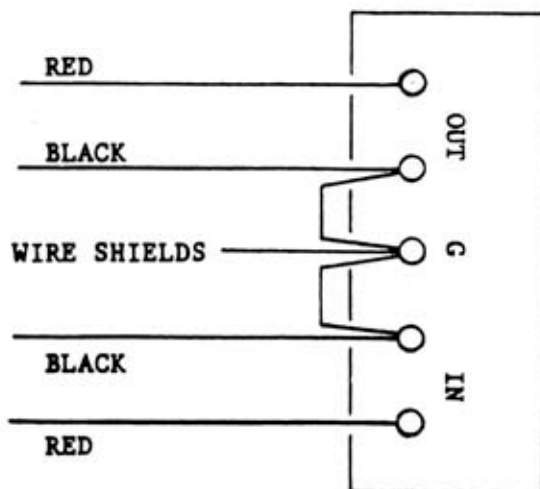
The High Peak control is Allen-Bradley Type JU-1031 or Ohmite Type CU-1031. This is a 10,000 ohm potentiometer with "Linear" taper.

The Dip control is Allen-Bradley Type CB-2521. This is a 2500 ohm potentiometer with counter clockwise Logarithmic taper.

PHASE CONNECTIONS

PULTEC MODELS EQP-1A3 EQH-2 MEQ-5

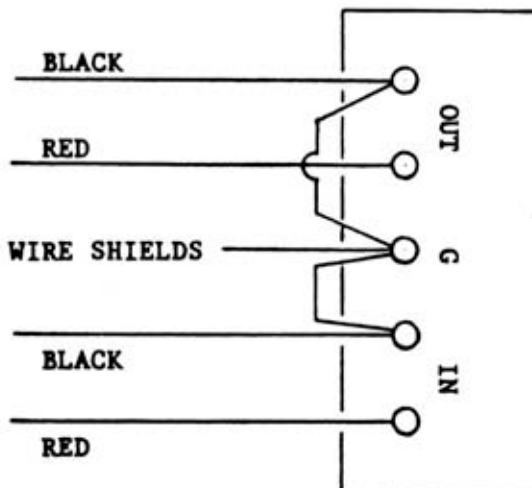
(FOR MODEL EQP-1A SEE NOTE BELOW)



OUTPUT IS IN SAME  
PHASE AS INPUT

FOR UNGROUNDED OPERATION  
OMIT JUMPERS

CONNECTION #1



OUTPUT IS IN REVERSE  
PHASE FROM INPUT

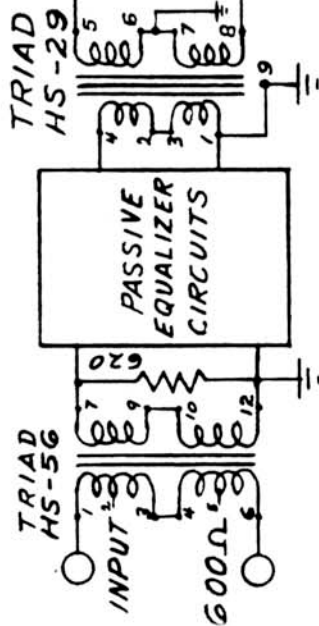
FOR UNGROUNDED OPERATION  
OMIT JUMPERS

CONNECTION #2

NOTE: For Model EQP-1A (now replaced by EQP-1A3) Connection #1 gives output in reverse phase from input. Connection #2 gives output in same phase as input.

# TRIAD HS-5G

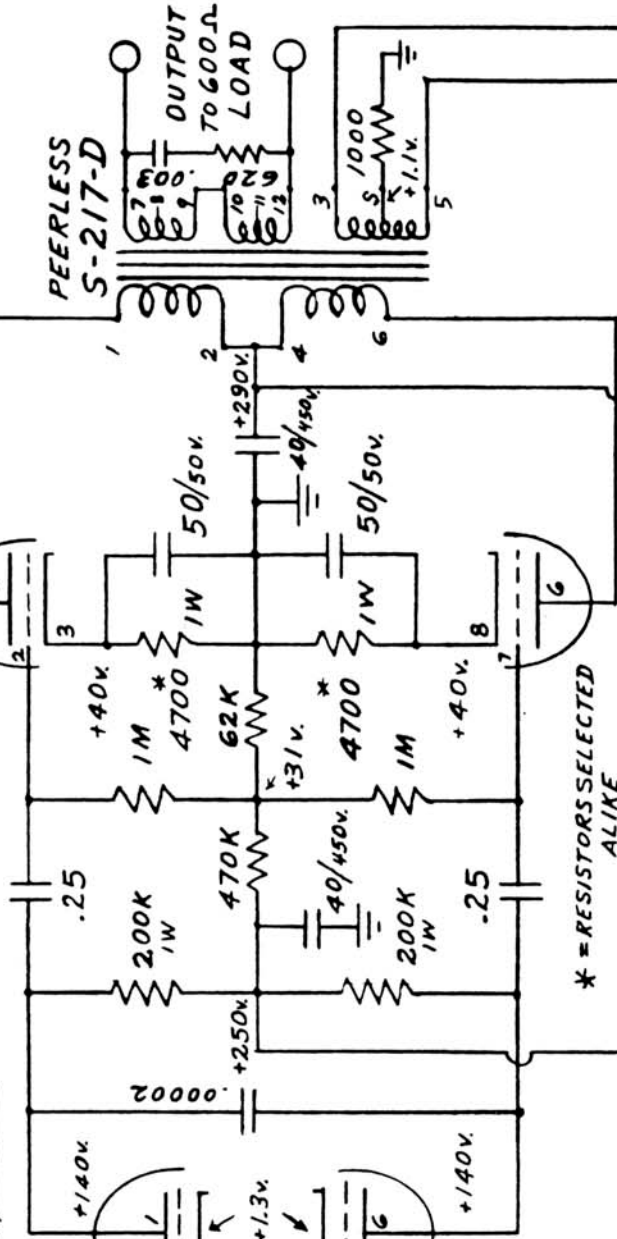
| INPUT IMPEDANCE | CONN. TO | STRAP    |
|-----------------|----------|----------|
| 600Ω            | 1-6      | 3-4 C.T. |
| 250Ω            | 2-5      | 3-4 C.T. |
| 150Ω            | 1-6      | 1-4 13-6 |
| 60Ω             | 2-5      | 2-4 3-5  |



OVERALL GAIN WITH INPUT & OUTPUT TRANSFORMERS CONNECTED FOR SAME IMPEDANCE IS 0 DB.

## ECC 82/12AU7

## ECC-83/12AX7



\* = RESISTORS SELECTED ALIKE

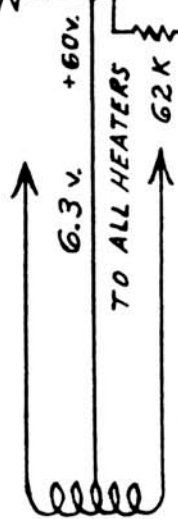
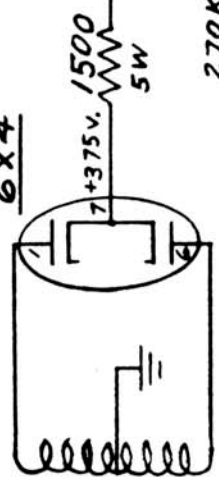
## TRIAD R-7A



1 AMP.



6X4



TO ALL HEATERS

| TO FEED LOAD OF        | STRAP      |
|------------------------|------------|
| 600Ω                   | 9-10       |
| 300Ω                   | 8-11       |
| 150Ω                   | 7-10, 9-12 |
| 75Ω                    | 7-11, 8-12 |
| ALWAYS CONNECT TO 7&12 |            |

SERIAL No.

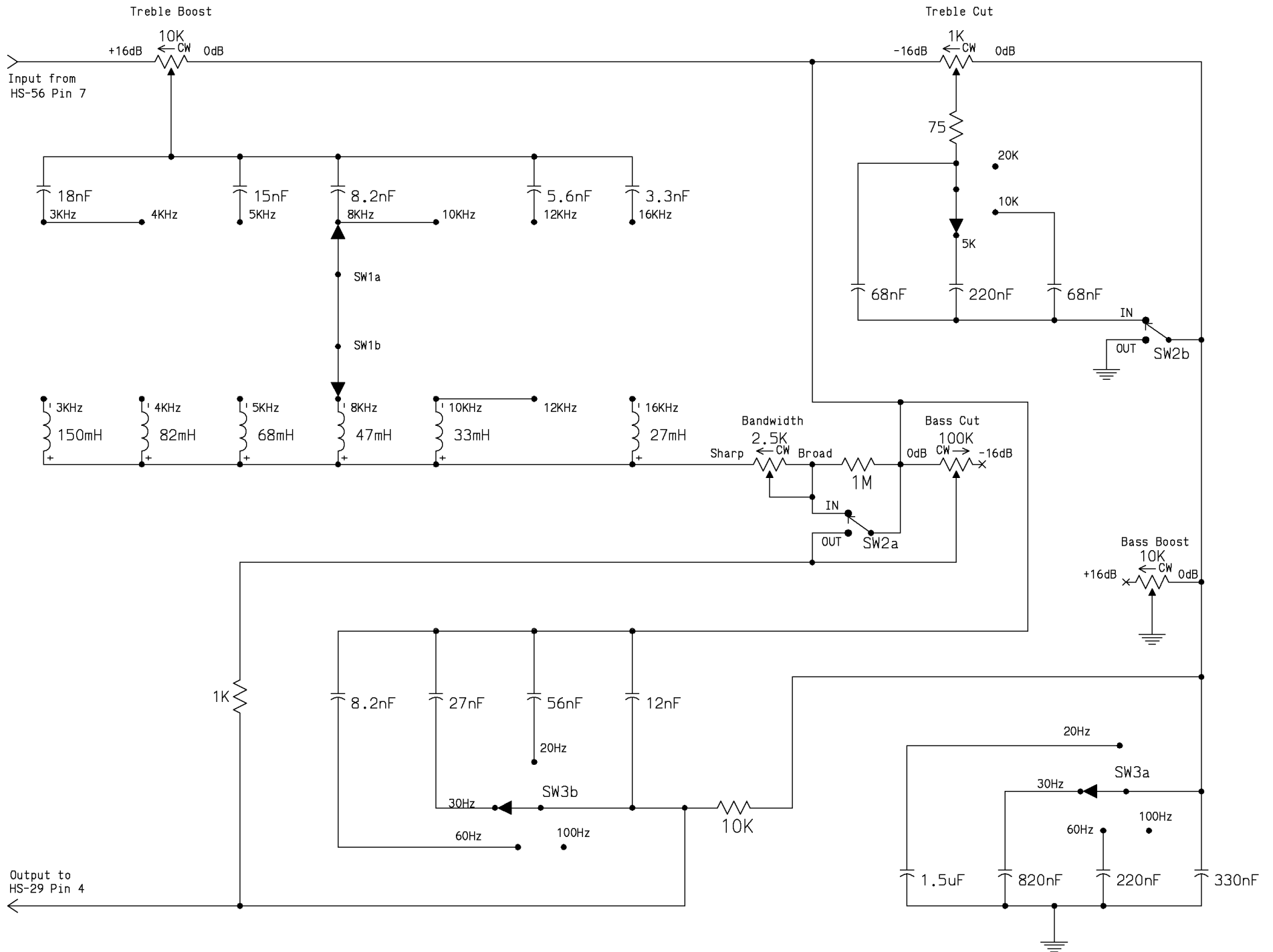
PULSE TECHNIQUES, INC.  
WEST ENGLEWOOD, N. J.

MODEL EQP-1A3  
PROGRAM EQUALIZER

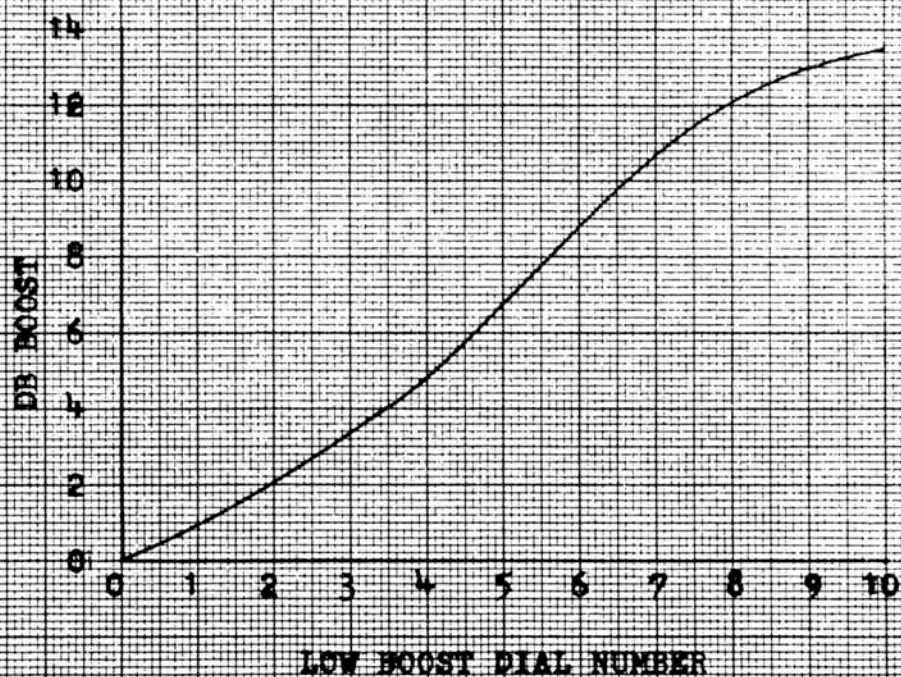
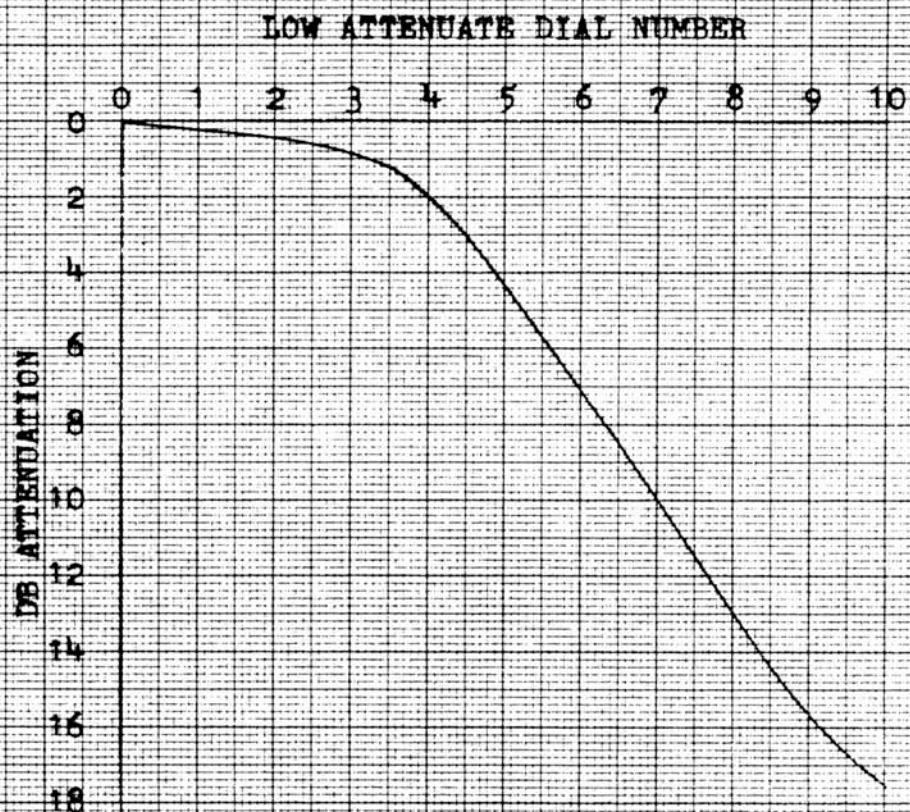
DWG. E-72.658-3

NOTE:  
VOLTAGES SHOWN ARE TYPICAL  
AVERAGE VALUES READ ON AN  
11 MEGOHM VOLTMETER.  
NO INPUT SIGNAL.

# PASSIVE EQUALIZER CIRCUIT PULTEC EQP-1A



PULTEC EQP-1  
EQUALIZER



PULTEC EQP-1  
EQUALIZER

HIGH ATTENUATE DIAL NUMBER

