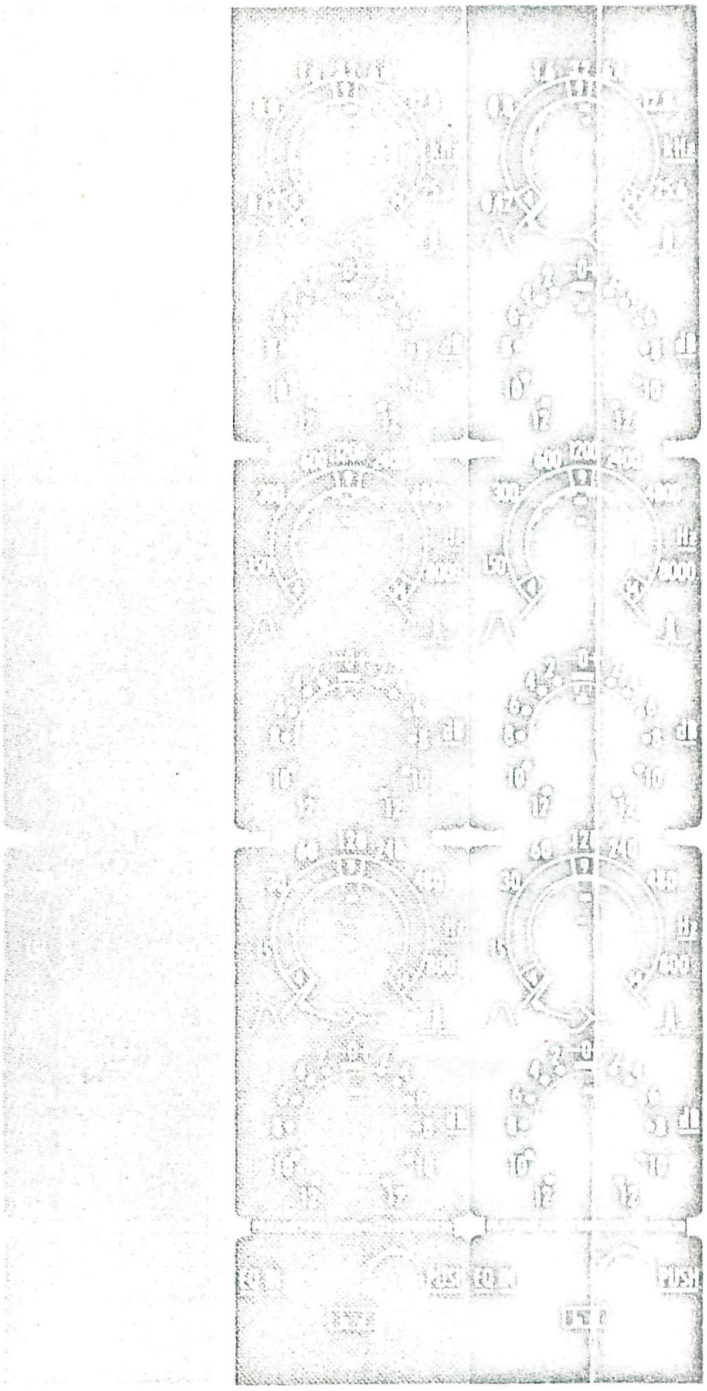


PARAMETRIC EQUALIZER MODULE MEP-130

TECHNICAL MANUAL

SERIAL No. DJW-DVT-001

INTERNATIONAL TELECOMM, INC. Hunt Valley, Maryland 21031

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

PARAMETRIC EQUALIZER TEST REPORT

MODEL MEP-130

MASTER BOARD/UNIT S/N D.W 1 RIGHT

TEST:

1. POWER SUPPLY VOLTAGES (QUIESCENT)

A. +28 Volt audio supply	+27.9 Volts	____ mA.
B. −28 Volt audio supply	28.0 Volts	____ mA.
C. 28 Volt lamp supply	27.9 Volts	____ mA.
D. +15 Volt regulator (master board)	+14.4 Volts	
E. L.E.D. Indicator	OK	

2. PROCESSOR BOARD S/N____

A. Lo frequency shelving function	OK
B. Hi frequency shelving function	OK
C. D.C. Offset appearing at output	−.0018 mVolts (18 MU)

3. LO FREQUENCY EQUALIZER BOARD S/N____

A. Calibration frequency	120 Hz.	
B. Level calibration	−12.82 dB. atten.	+12.62 ± dB. boost
C. Shape control	OK Broad	OK Sharp

4. MID FREQUENCY EQUALIZER BOARD S/N____

A. Calibration frequency	1200 Hz.	
B. Level calibration	−13.02 dB. atten.	+12.85 ± dB. boost
C. Shape control	OK Broad	OK Sharp

5. HI FREQUENCY EQUALIZER BOARD S/N____

A. Calibration frequency	300 Hz.	
B. Level calibration	−12.86 dB. atten.	+12.65 ± dB. boost
C. Shape control	OK Broad	OK Sharp

6. OVERALL EQUALIZER PERFORMANCE

A. Frequency response (Ref. 1000Hz.)	−0.13 dB. 10Hz.	−0.59 dB. 40kHz.
B. Square wave tilt @ 20 Hertz	−0− Percent	
C. Square wave overshoot @ 20 kHz.	NONE Percent	
D. Hum & noise (Input term. 560 Ohms)	UNMEASURABLE dBm. out	____ dBm. in
E. THD (All level controls at zero)	— % THD	— % Residual
F. Max. output level into 600 Ohms	+28.0 dBm.	
G. Insertion gain (loss) @ 1000 Hz.	−0− dB.	
H. Pot noise & switch clicks	OK	
I. Listening test	OK	
J. Unit connector provided	—	

TESTED BY: [signature] DATE 09 21 76

INSPECTED BY _____ DATE _____

PARAMETRIC EQUALIZER TEST REPORT

MODEL MEP-130

MASTER BOARD/UNIT S/N 2 DJW LEFT

TEST:

1. POWER SUPPLY VOLTAGES (QUIESCENT)

A. +28 Volt audio supply	27.9 Volts	___ mA.
B. −28 Volt audio supply	28.0 Volts	___ mA.
C. 28 Volt lamp supply	27.9 Volts	___ mA.
D. +15 Volt regulator (master board)	+14.7 Volts	
E. L.E.D. Indicator	OK	

2. PROCESSOR BOARD S/N ___

A. Lo frequency shelving function	OK
B. Hi frequency shelving function	OK
C. D.C. Offset appearing at output	-.082 Volts (82 MV.)

3. LO FREQUENCY EQUALIZER BOARD S/N ___

A. Calibration frequency	120 Hz.	
B. Level calibration	−12.82 dB. atten.	+12.56 ± dB. boost
C. Shape control	OK Broad	OK Sharp

4. MID FREQUENCY EQUALIZER BOARD S/N ___

A. Calibration frequency	1200 Hz.	
B. Level calibration	−12.36 dB. atten.	−12.23 ± dB. boost
C. Shape control	OK Broad	OK Sharp

5. HI FREQUENCY EQUALIZER BOARD S/N ___

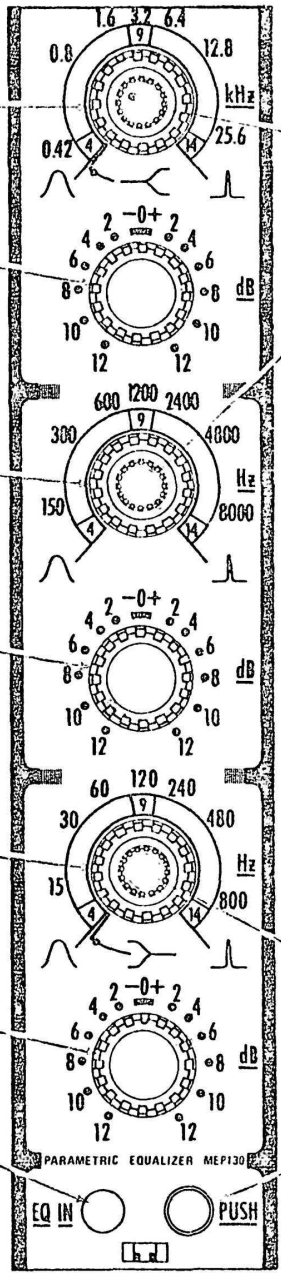
A. Calibration frequency	3200 Hz.	
B. Level calibration	−12.27 dB. atten.	−12.09 ± dB. boost
C. Shape control	OK Broad	OK Sharp

6. OVERALL EQUALIZER PERFORMANCE

A. Frequency response (Ref. 1000Hz.)	−0.14 dB. 10Hz.	−0.71 dB. 40kHz.
B. Square wave tilt @ 20 Hertz	−0− Percent	
C. Square wave overshoot @ 20 kHz.	NONE Percent	
D. Hum & noise (Input term. 560 Ohms)	UNMEASURABLE dBm. out	___ dBm. in
E. THD (All level controls at zero)	— % THD	— % Residual
F. Max. output level into 600 Ohms	+21.7 dBm.	
G. Insertion gain (loss) @ 1000 Hz.	0 dB.	
H. Pot noise & switch clicks	OK	
I. Listening test	OK	
J. Unit connector provided	—	

TESTED BY: [signature] DATE 09 21 76

INSPECTED BY: ___ DATE ___



Infinitely variable frequency from 400 – 25,600 Hz (outer knob)

Infinitely variable boost or attenuation 12dB

Infinitely variable frequency from 100 – 8,000 Hz (outer knob)

Infinitely variable boost or attenuation 12dB

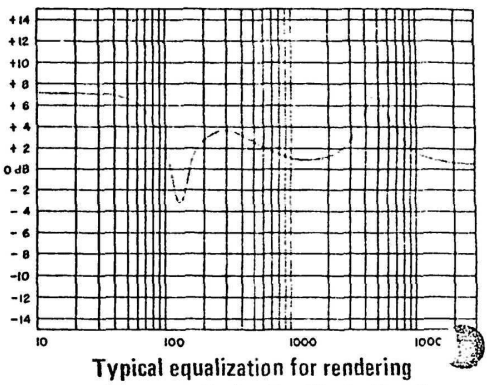
Infinitely variable frequency from 10 – 800 Hz (outer knob)

Infinitely variable boost or attenuation 12dB

Equalizer indicator light

Infinitely variable selectivity or "Q" from 4 to 14 dB per octave. (inner knob) Infinitely variable frequency shelving curves. (Full ccw on inner knob)

Infinitely variable selectivity or "Q" from 4 to 14 dB per octave. (inner knob)



Typical equalization for rendering of an acoustical guitar illustrating the combined effects of a broad peak, low frequency shelf, and a sharp notch. The control settings used to produce this characteristic are shown.

Infinitely variable selectivity or "Q" from 4 to 14 dB per octave (inner knob) Infinitely variable frequency shelving curves. (Full ccw on inner knob)

Equalizer in or out switch

Figure 1

PARAMETRIC EQUALIZER, MODEL MEP–130

GENERAL DESCRIPTION:

This device is a solid-state equalizer utilizing active circuit techniques to achieve results not otherwise obtainable. The system consists of two sub-sections –(1) shelving equalization and (2) Parametric equalization. The shelving curves are adjustable in both boost (or attenuation) and corner frequency. The high and low frequency shape controls, when turned to their fully counter-clockwise rotation automatically programs the internal frequency shaping networks to alter the peak (dip) equalization characteristics to high and low band shelves. The corner frequency for the shelves is adjusted by turning the high and low frequency controls. It is possible to utilize shelving characteristics at the extremes of the audio passband while inserting a peak (dip) within the range of the mid frequency control.

The Parametric section includes three groups of equalization controls in broadly overlapping frequency ranges as follows:

Low	10 Hz. to 800 Hz.
Mid	100 Hz. to 8,000 Hz.
High	400 Hz. to 25,600 Hz.

Each frequency group consists of three infinitely variable controls.

a. Frequency selector.
b. Shape (Q) – from 4 dB/octave through 14 dB/octave, shelf/peak switch.
c. Level – 12 dB attenuation through 12 dB of boost.

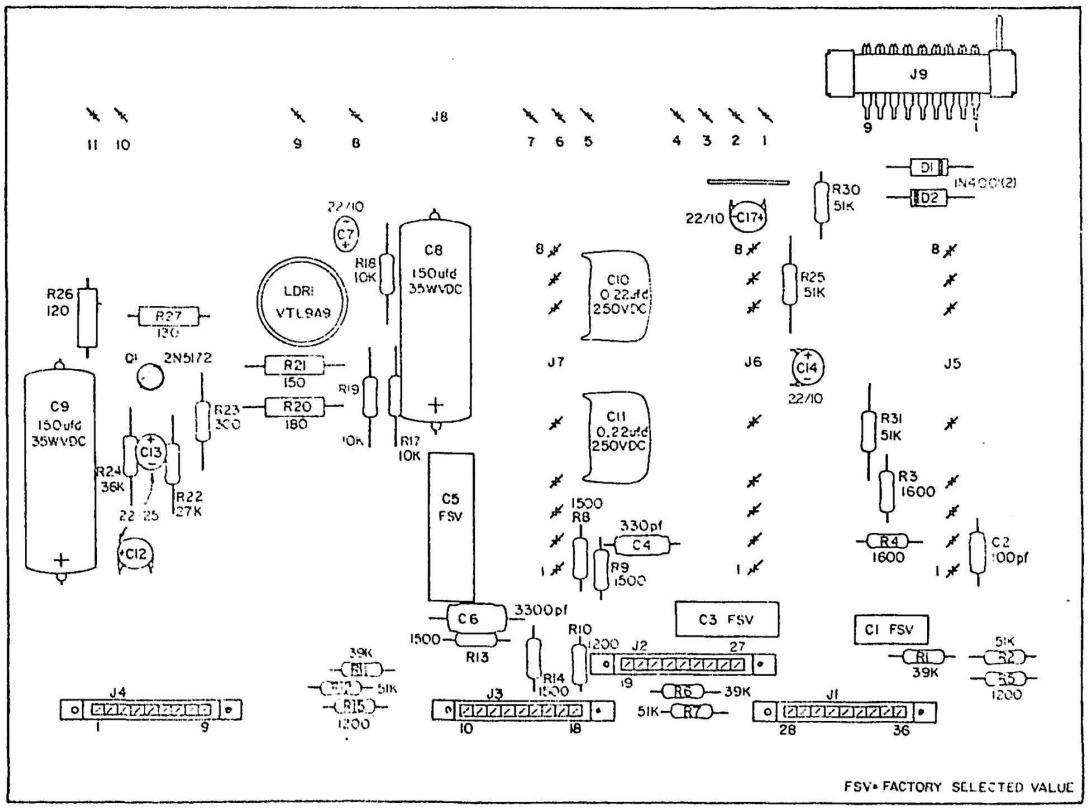


FIG. 1 MASTER BOARD COMPONENT LOCATIONS

Each unit has been performance verified and operated for 72 hours before packaging. Should you encounter any problems upon initial operation, please refer to the section "Troubleshooting" before contacting your distributor or the factory.

First, familiarize yourself with the basic unit. The unit is divided into four basic assemblies.

A. Front Panel/Controls/Connectors.
B. Master Board.
C. Equalizer Boards (3).
D. Processor Board.

CONNECTIONS:

Since the input is normally 100K ohm balanced, loading of the normal 600 ohm studio line will not occur.

Particular care should be taken to avoid the formation of ground current loops; at the least they degrade the noise performance and at the worst they can cause frustrating crosstalk or noise problems where none existed previously. External output transformers can be added by the user. The unfortunate fact is that even the best transformer degrades the performance of this device. Only the most expensive examples of winding techniques are even marginally satisfactory, but if you must have a balanced output there is a slight sweetener built in. Pick a transformer with a 300 ohm primary and a 600 ohm secondary and your output is increased by 6 dB. However, this modification changes the insertion gain of the device. It is no longer unity, but rather +6 dB. It is necessary then, to install a 6 dB pad at the input of the equalizer.

Choice of normal operating level is left to the discretion of the user. Inasmuch as the self-noise level of the device is fixed at −84 dBm, changes in nominal operating level simply involve trade-offs between S/N ratio and operating headroom. The most appropriate compromise under normal conditions is operation at +4 dBm nominal, although we believe that "O" level operation provides a more satisfactory overload margin (+24 dBm) under conditions of live master recording.

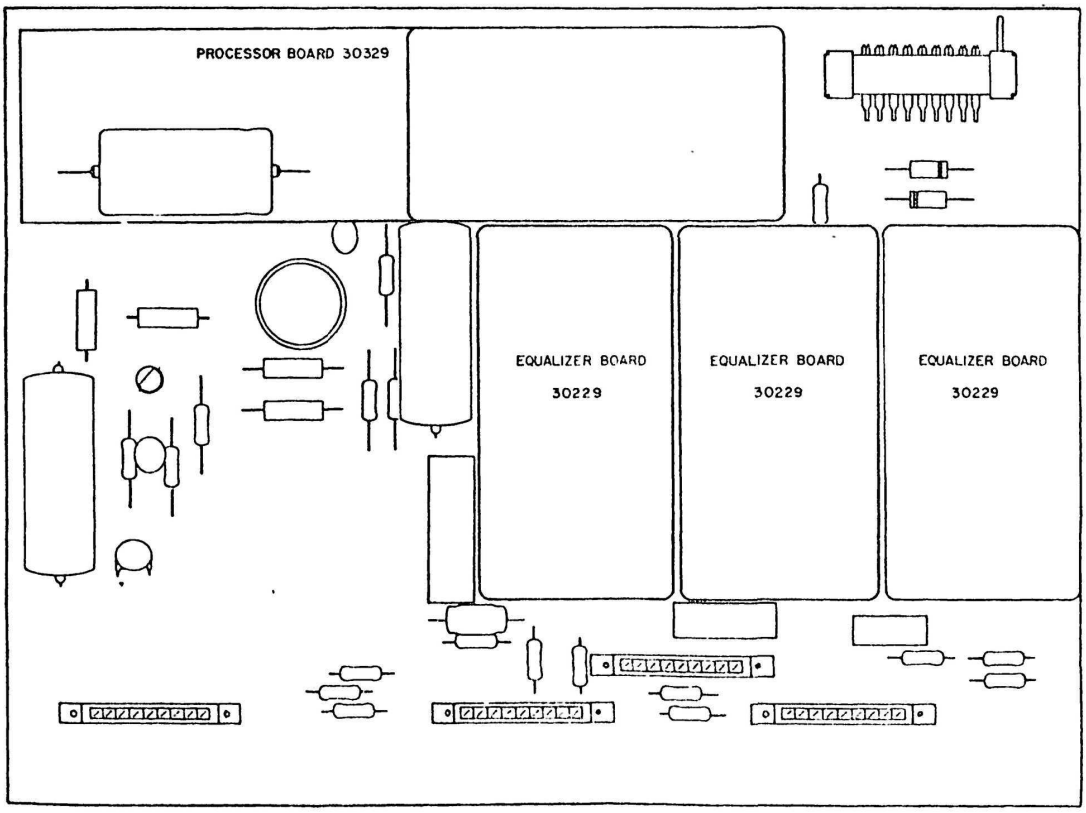


FIG. 2 MASTER BOARD SUBASSEMBLY LOCATIONS

Since most commonly used audio cable has capacitance of 45 to 50 pf. per foot, the 10 ohm output impedance of this device will provide less degradation than a normal 600 ohm output transformer driving the same cable. Moreover, all types of devices may be bridged across the output, as long as their total impedance in parallel is greater than 300 ohm. The internal circuitry is very forgiving of connection errors and the output can safely be shorted to ground.

INSTALLATION CHECKLIST:

A. Connect the unit to a regulated D.C. power supply capable of supplying +28 VDC @ 150 mA and −28 VDC @ 150 mA as follows:

Using cable connector supplied with unit, Pin 1 is on opposite end from polarizing pin.

Pin 1 —— connect to negative side of 28 volt lamp supply

Pin 3 —— connect to positive side of 28 volt lamp supply

Pin 5 —— connect to +28VDC audio supply

Pin 6 —— connect to power supply common return

Pin 7 —— connect to −28VDC audio supply

A companion power supply is available from the factory under the model numbers PSE−120 (will power up to two MEP−130's), PSE−240 (up to four MEP−130's), PSE−416 (up to sixteen MEP−130's). Be certain to connect to proper polarity, as damage could result to the equalizer protection diodes if polarity is reversed.

B. Connect input and output audio leads as indicated on connection diagram.

C. With equalizer function switch in the "OUT" position, feed program material into input.

D. With all controls in the straight-up position, listen to the output of the equalizer. Now set the equalizer switch to the "IN" position. There should be no observable change in audio level or frequency response. With the high and low shape controls rotated fully CCW, rotate first one, then the other, of the shelving level controls first clockwise, then counter-clockwise. The effect should be very obvious. Return these controls to the "O" dB ("Flat") position. Turn the high and low shape controls full clockwise.

E. Turn the low-frequency Parametric Equalizer level and frequency controls clockwise. An obvious peak should be heard. Now gradually rotate the frequency control counter-clockwise. The equalized peak will then be swept from approximately 800 Hz to 10 Hz. This frequency sweep will be quite obvious as long as there is audio in the frequency range being boosted. Now rotate the same "level" control full counter-clockwise and repeat the frequency sweep test.

F. Repeat procedure "E" for the mid frequency and Hi-frequency sections. If controls fail to provide the indicated control functions, refer to the section on troubleshooting.

G. While listening to highly equalized audio, place the equalization "IN-OUT" switch in the "OUT" position. You should now hear a completely unequalized signal. There should be no transient click or thump associated with this switch actuation.

H. After the above familiarization, you are ready to begin use of the equipment. The wide frequency response of the device makes it particularly important to exercise caution in the use of the extreme upper and lower frequencies to avoid the possibility of producing energy levels which will cause either tape saturation or problems in the cutting of master discs.

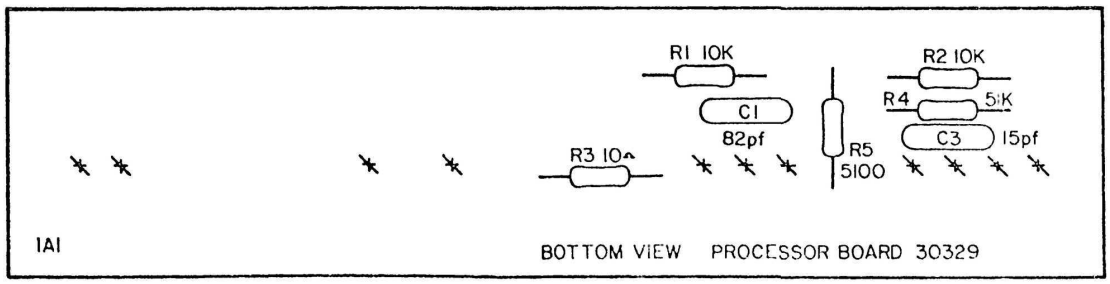


FIG. 3 PROCESSOR BOARD COMPONENT LOCATIONS

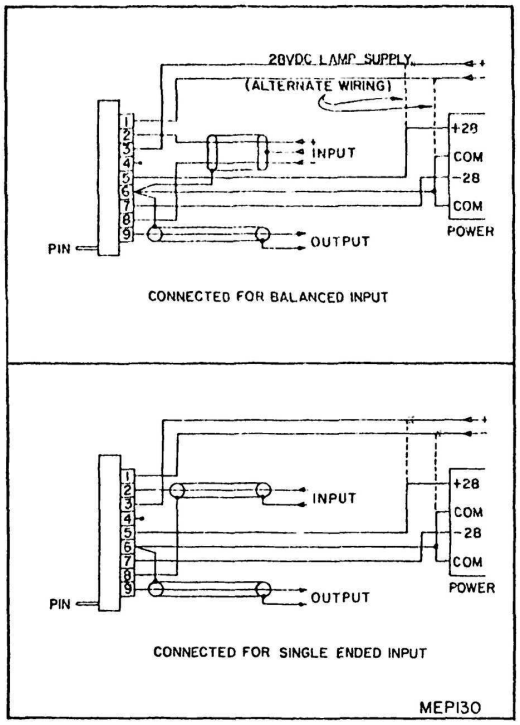


FIG. 4 UNIT CONNECTIONS

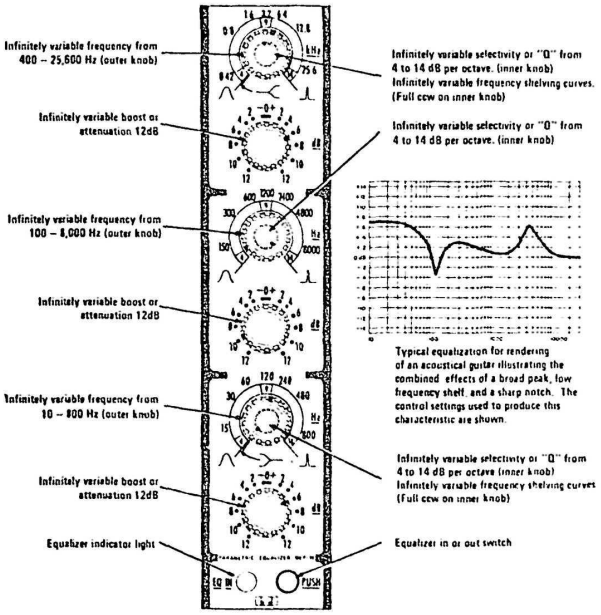


FIG. 5 FRONT PANEL CONTROLS

ELECTRICAL PARTS LIST

I. 30109 MASTERBOARD – PREFIX 1A

A. RESISTORS, DEPOSITED CARBON (¼ watt ± 5% unless otherwise specified)

R1	39 K
R2	51 K
R3	1600
R4	1600
R5	1200
R6	39 K
R7	51 K
R8	1500
R9	1500
R10	1200
R11	39 K
R12	51 K
R13	1500
R14	1500
R15	1200
R16	Not Used
R17	10 K
R18	10 K
R19	10 K
R20	180 ½ watt
R21	150 ½ watt
R22	27 K
R23	300
R24	36 K
R25	51 K
R26	120 ½ watt
R27	130 ½ watt
R28	Not Used
R29	Not Used
R30	51 K
R31	51 K

B. CAPACITORS

C1	Selected At Time of Test.
C2	100 pfd. @ 63 WVDC ± 5% Polystyrene.
C3	Selected At Time of Test.
C4	330 pfd. @ 63 WVDC ± 5% Polystyrene.
C5	Selected At Time of Test.
C6	3300 pfd. @ 63 WVDC ± 5% Polystyrene.
C7	22 ufd. @ 10 WVDC Solid Tantalum Electrolytic.
C8	150 ufd. @ 35 WVDC Aluminum Electrolytic Mallory MTA–150F35
C9	150 ufd. @ 35 WVDC Aluminum Electrolytic Mallory MTA–150F35

C10	0.22 ufd. @ 250 WVDC ± 10% Metallized Polyester Amperex C280AE/A220K
C11	0.22 ufd. @ 250 WVDC ± 10% Metallized Polyester Amperex C280AE/A220K
C12	22mfd. @ 25 WVDC Solid Tantalum Electrolytic
C13	22mfd. @ 25 WVDC Solid Tantalum Electrolytic
C14	22mfd. @ 10 WVDC Solid Tantalum Electrolytic
C15	Not Used
C16	Not Used
C17	22mfd. @ 10 WVDC Solid Tantalum Electrolytic

C. MISCELLANEOUS

Q1	Transistor, NPN Silicon 2N5172
D1,D2	Diode, Silicon IN4001
J1	Connector, 9 Pin Polarized, Elco P/N 00–8129–009–603–002
J2	Connector, 9 Pin Polarized, Elco P/N 00–8129–009–603–002
J3	Connector, 9 Pin Polarized, Elco P/N 00–8129–009–603–002
J4	Connector, 9 Pin Polarized, Elco P/N 00–8129–009–603–002
J5	Connector, P/C Board, Elco P/N 5208–02–013–001–5–200
J6	Connector, P/C Board, Elco P/N 5208–02–013–001–5–200
J7	Connector, P/C Board, Elco P/N 5208–02–013–001–5–200
J8	Connector, P/C Board, Elco P/N 5208–02–013–001–5–200
J9	Connector, 9 Pin Polarized, Elco P/N 00–8129–009–610–001
LDR1	Cadmium Sulfide Photocell/Lamp Assy. VACTEC–VTL9A9

II. 30008 –1 PANEL ASSEMBLY – PREFIX 2A

A. RESISTORS, POTENTIOMETERS

R1A,B,C.	100K/100K/5000 ohm Concentric Potentiometer, Carbon w/switch, Special Tapers, ITI P/N 11M763
R2	50 K Ohm Potentiometer, Carbon, Tapped, Special Taper. Allen-Bradley P/N JA4N100P503CA
R3A,B,C	100K/100K/5000 Ohm Concentric Potentiometer, Carbon, W/O switch, Special Tapers. ITI P/N 11M486
R4	50 K Ohm Potentiometer, Carbon, Tapped, Special Taper. Allen-Bradley P/N JA4N100P503CA
R5	50 K Ohm Potentiometer, Carbon, Tapped, Special Taper. Allen-Bradley P/N JA4N100P503CA
R6A,B,C	100K/100K/5000 Ohm Concentric Potentiometer, Carbon, w/ switch, Special Tapers, ITI P/N 11M763
R7	220K Ohm ± 5% Deposited Carbon ¼ watt
R8	2700 Ohm ± 5% Deposited Carbon ½ watt
R9	2700 Ohm ± 5% Deposited Carbon ½ watt

B. MISCELLANEOUS

D1	Light Emmiting Diode, Fairchild FLV–110
SW1	Part of R1C
SW2	Part of R6C
SW3	SPDT Push On, Push Off Cutler-Hammer P/N SA21–SEX11

III. 30329 PROCESSOR BOARD – PREFIX 1A1

A. RESISTORS, DEPOSITED CARBON (¼ watt ± 5% unless otherwise specified)

R1	10 K
R2	10 K
R3	10 Ohm
R4	51 K
R5	5100

B. CAPACITORS

C1	82 pfd. @ 500 WVDC ± 5% CD15ED820J03
C2	2000 mfd. @ 4 WVDC Aluminum Electrolytic
C3	15 pfd. @ 500 WVDC ± 5% RDM15CD150J03

C. MISCELLANEOUS

M1	ITI Processor Module, P/N 20320

IV. 30229 EQUALIZER BOARD – PREFIX 1A2, 1A3, 1A4

A. MISCELLANEOUS

M1	ITI Equalizer Module, P/N 20220

TROUBLESHOOTING GUIDE

SYMPTOM	PROBABLE CAUSE	REMEDY
L.E.D. Indicator Inoperative	1. Defective LED 2. Reversed Lamp Supply Voltage 3. Defective Resistor	1. Replace LED 2. Apply positive side of 28VDC lamp supply to J9-3 3. Replace 2AR8, 2AR9
No Equalization, Indicator On A. No Lo Freq. Shelving B. No Hi Freq. Shelving C. No Parametric	 1. Defective Switch 1. Defective Switch 2. Shorted Resistor 1. Defective Module 2. Defective Photocell or Resistor	 1. Replace 2AR1/2ASW1 1. Replace 2AR6/2ASW2 2. Replace 2AR7 1. Interchange 30229 Board with another position to isolate fault, replace faulty 20220 module. 2. Replace 1ALDR1, 1AR20, 1AR21, 1AR26, 1AR27.
Maximum, Minimum Equalization Levels below Published Specifications	1. Photocell Lamp Age Darkened	1. Replace 1ALDR1
Maximum, Minimum Equalization Levels Exceed Published Specifications	1. Defective Module 2. Faulty Connection on 30229 Board	1. Replace 20220 Module 2. Inspect and Repair 30229 Board
Noise Level Excessive A. Equalization Out B. Equalization In	 1. Defective Processor Module 1. Defective Equalizer Module	 1. Replace 20320 Module 1. Interchange 30229 Board with another position to isolate fault. Replace faulty 20220 module
Distortion Exceeds Published Specifications	1. Defective Module 2. Defective Power Supply 3. Incorrect Termination	1. Replace 20220, 20320 2. Replace or Repair 3. Terminate unit with 300 Ohms or greater.
Excessive Hum or Ripple	1. Defective +15 volt regulator 2. Defective Unit Power Supply 3. Groundloop	1. Replace 1AQ1, 1AC12, 1AC13. 2. Replace or Repair 3. Properly Shield and terminate all interconnections.
DC Offset on Output	1. DC Offset on input 2. Shorted Capacitor -	1. Remove DC on input 2. Replace 1A1C2
No Output	1. Open Capacitor 2. Defective Resistor 3. Defective Module	1. Replace 1A1C2 2. Replace 1A1R3 3. Replace 20320 Module

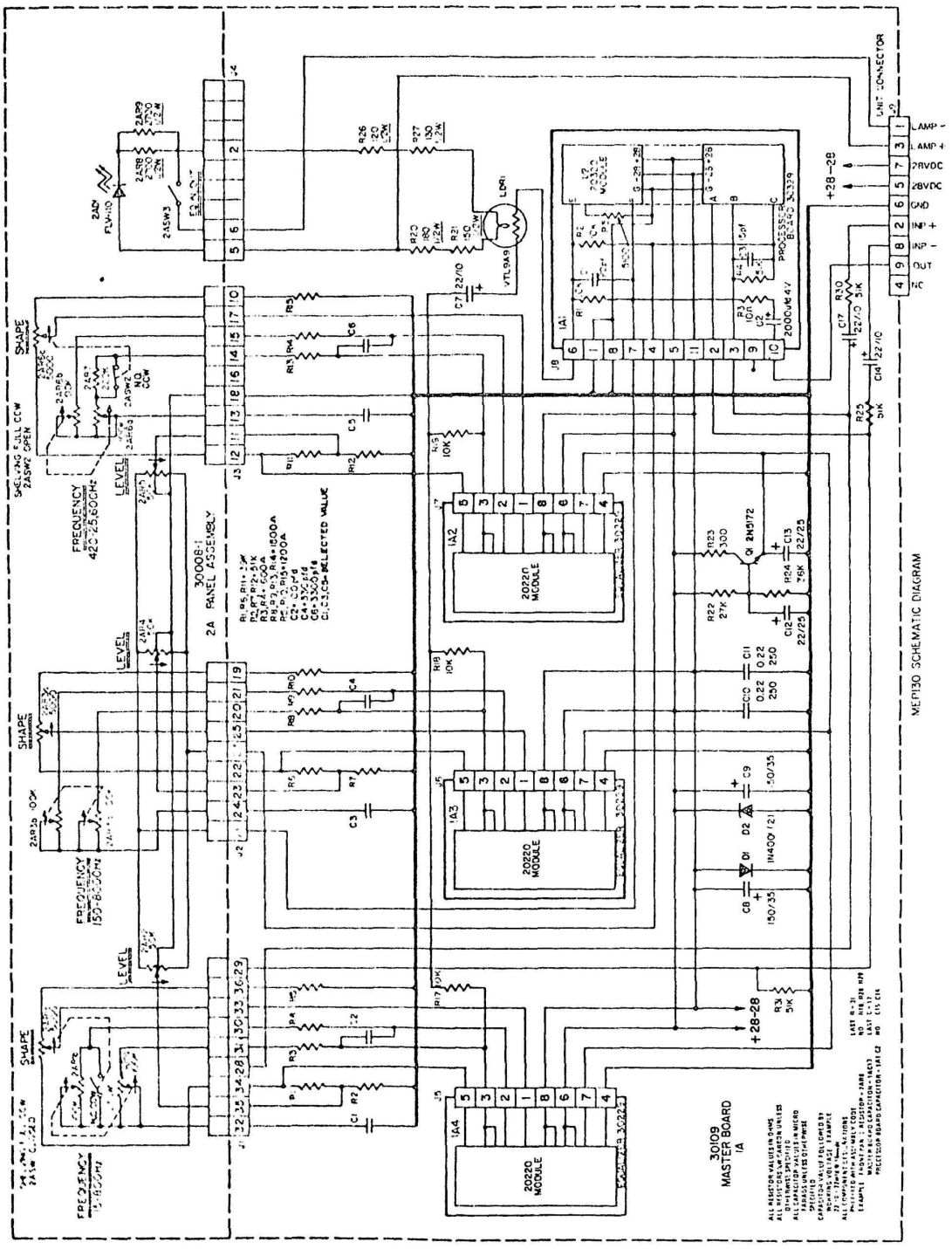
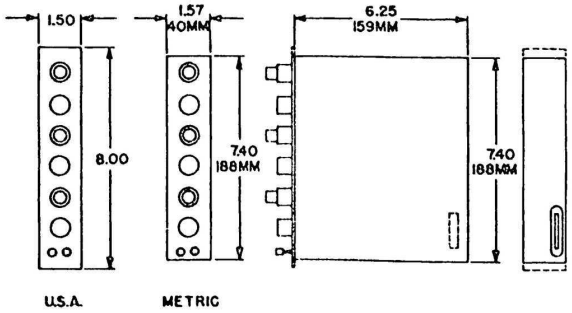


FIG. 6 UNIT SCHEMATIC

TECHNICAL SPECIFICATIONS
MEP – 130

ITEM	SPECIFICATIONS	NOTES
Input Impedance	100,000 ohms balanced	
Output Impedance	10 ohms	Will meet published specification looking into 300 ohms or greater
Nominal Level	0 dBm to + 8 dBm	0 dBm recommended to assure 24 dBm headroom
Insertion Loss	±1.0 dB	
Frequency Response	10–40,000 Hz ±0.1 dB	Measured at any level to + 24 dB
Hum & Noise	–95 dBm (Equalization Out) –84 dBm (Equalization In)	20 – 20,000 Hz
Distortion	Less than 0.03% THD	Measured at any level from 0 dBm to + 24 dBm (10 - 40,000 Hz)
Phase Shift	Less than 15°	All level controls set to "Flat" Measurement made at 20,000 Hz
Square Wave Response	Less than 0.5% overshoot	
Controls		
High Frequency Shelving	Infinitely variable	Level continuously variable ±12 dB Slope 5 dB/octave
Low Frequency Shelving	Infinitely variable	Level continuously variable ±12 dB Slope 5 dB/octave
Low Frequency Equalization	Infinitely variable 10 – 800 Hz	Accurate octave calibration
Mid Frequency Equalization	Infinitely variable 100 – 8000 Hz	Accurate octave calibration
High Frequency Equalization	Infinitely variable 400 – 25,000 Hz	Accurate octave calibration
Level Controls	Infinitely variable ±12 dB at all equalization frequencies	Calibrated at 2 dB intervals
Shape Controls	Slope characteristics Infinitely variable 4 to 14 dB/octave	
Power Requirements	±28 V DC @ 70 mA, (28 volt; 60 mA Lamp on separate terminals. May be strapped to same power)	Connector: Elco 8190-009-605-003 or ITI 130-80
Dimensions		

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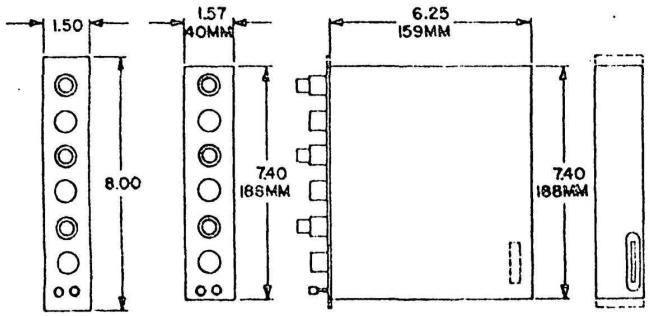
TECHNICAL SPECIFICATIONS
MEP – 130

ITEM	SPECIFICATIONS	NOTES
Input Impedance	100,000 ohms balanced	
Output Impedance	10 ohms	Will meet published specification looking into 300 ohms or greater
Nominal Level	0 dBm to + 8 dBm	0 dBm recommended to assure 24 dBm headroom
Insertion Loss	±1.0 dB	
Frequency Response	10–40,000 Hz ±0.1 dB	Measured at any level to + 24 dB
Hum & Noise	–95 dBm (Equalization Out) –84 dBm (Equalization In)	20 – 20,000 Hz
Distortion	Less than 0.03% THD	Measured at any level from 0 dBm to + 24 dBm (10 - 40,000 Hz)
Phase Shift	Less than 15°	All level controls set to "Flat" Measurement made at 20,000 Hz
Square Wave Response	Less than 0.5% overshoot	
Controls High Frequency Shelving	Infinitely variable	Level continuously variable ±12 dB Slope 5 dB/octave
Low Frequency Shelving	Infinitely variable	Level continuously variable ±12 dB Slope 5 dB/octave
Low Frequency Equalization	Infinitely variable 10 – 800 Hz	Accurate octave calibration
Mid Frequency Equalization	Infinitely variable 100 – 8000 Hz	Accurate octave calibration
High Frequency Equalization	Infinitely variable 400 – 25,000 Hz	Accurate octave calibration
Level Controls	Infinitely variable ±12 dB at all equalization frequencies	Calibrated at 2 dB intervals
Shape Controls	Slope characteristics Infinitely variable 4 to 14 dB/octave	
Power Requirements	±28 V DC @ 70 mA, (28 volt; 60 mA Lamp on separate terminals. May be strapped to same power)	Connector - Elco 8190-009-605-003 or ITI 130-80

Dimensions



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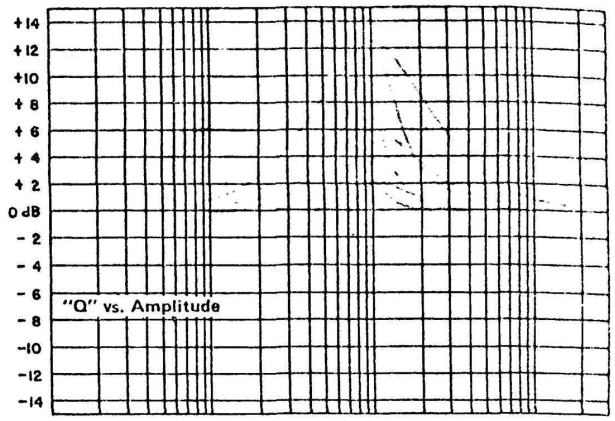
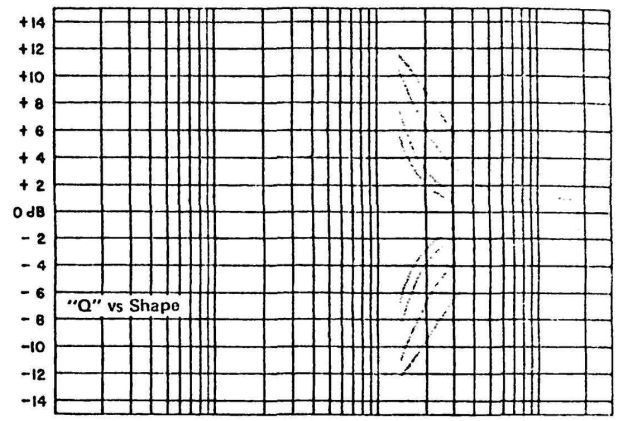
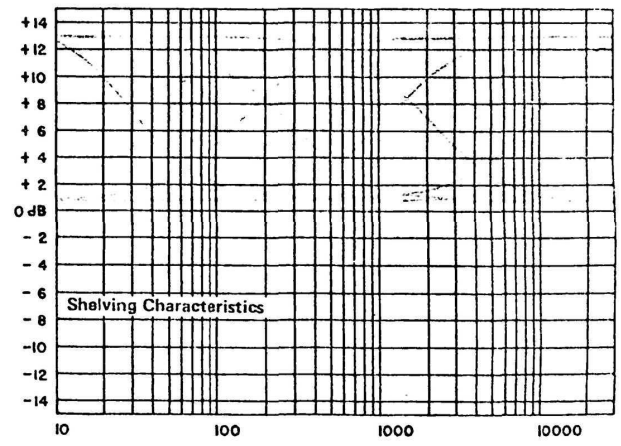
The operating controls on the Parametric Equalizer MEP—130 are shown in Figure 1. All controls are infinitely and continuously variable -- no stops, or detents or arbitrary positions. The equalizer module has three overlapping frequency sections -- low, mid-range and high frequency. The three dual concentric knobs control the manipulation of any frequency within that particular range. The small knob concentric with the frequency knobs adjusts the shape over the range of 4 to 14 dB per octave. The low frequency range and high frequency range shape controls, when turned to the full ccw position, switch their respective functions into continuously variable frequency shelving curves. The knobs under each frequency adjust the amount of boost or cut up to 12 dB. A small push button places the equalizer networks in or out of the circuit while energizing a LED indicator showing when equalization is "In." The switching is silently accomplished by a photo cell, thereby permitting use of this function during programming.

A somewhat less obvious operational feature of this equalization module is the virtual lack of interaction between the amount of equalization and the actual shape of the peak. This allows changes of one control without the necessity of adjusting other controls to compensate for the effect of the first change.







ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The Equalizer shall be a channel module type, with physical dimensions of not more than 1½" w. x 8" h. x 6¼" d.; for console control panel installation. The channel module shall have three equalization bands, and variable shelving curves on low and high frequency controls. The equalizer module shall operate in three overlapping frequency ranges (10-800 Hz), (100-8,000 Hz) and (400-25,600 Hz). The frequency controls will be of continuous rotation design, and no rotary switches shall be utilized. Each frequency group shall be continuously variable in level from −12 to +12 dB with zero equalization at half-rotation. The shape or "Q" of each frequency group shall also be continuously variable from 4 to 14 dB per octave, switchable to infinitely variable shelving characteristics for the high and low frequency ranges. The equalizer module shall be a unity gain device which may be inserted in a program line of 0, +4 or +8 dBm level. Switching of the equalizer into and out of the system shall be transient-free. The equalizer shall be constructed of modular, plug-in units. The input impedance shall be at least 100,000 ohms balanced, and the output impedance 10 ohms, designed to operate into a load of 300 ohms or greater. Maximum level shall be +24 dBm with frequency response uniform ±0.1 dB 10 to 40,000 Hz. THD shall be less than 0.03% at any level up to clipping. The unit shall operate on ±28 volts D.C. The unit shall be the ITI PARAMETRIC EQUALIZER MODULE MODEL MEP 130.