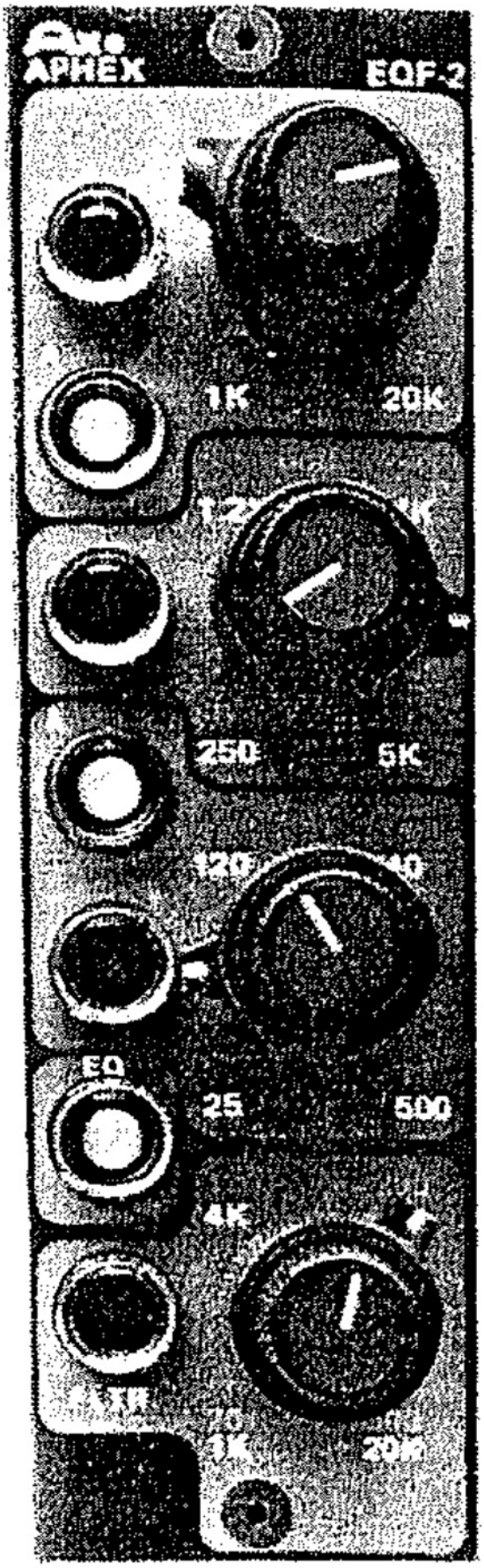
APHEX EQF-2 Parametric Equalizer Filter User Manual

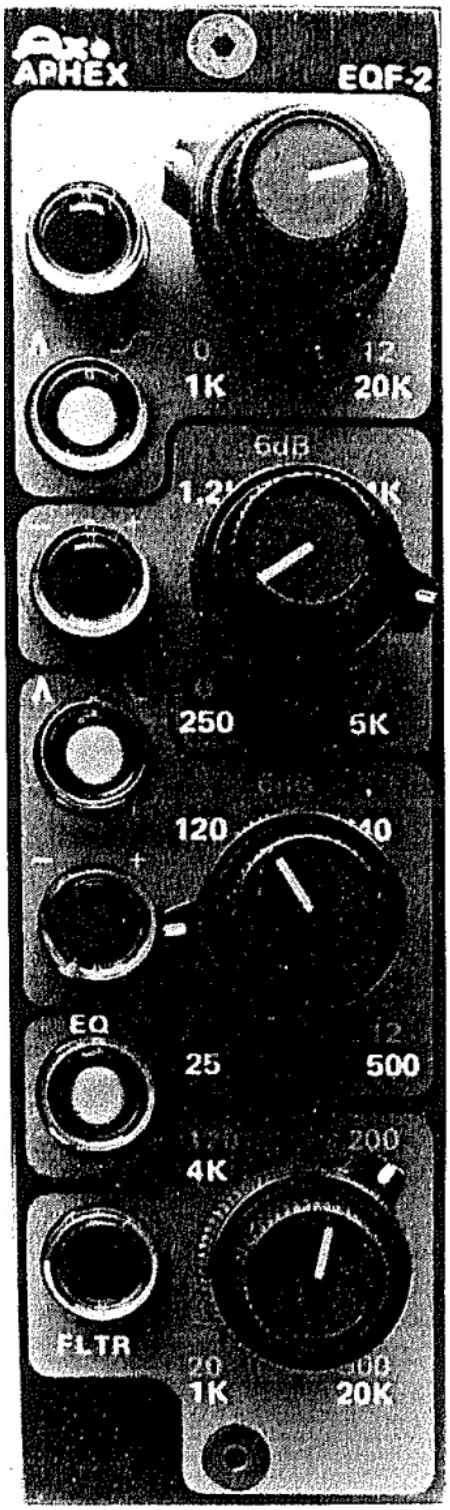
EQF-2 Parametric Equalizer Filter
User Manual


APHEX
EQF-2
1K
20K
250
5K
120
40
EQ
25
500
4K
3K
20K

Contents

EQF-2 Parametric Equalizer Filter

- Tunable Peak/Shelf EO
- Tunable Hi/Lo Pass Filter Modular (Retrofits to Industry Standards)
- Full Band (20Hz to 20kHz)
- Constant Bandwidth (1.5 Octave)
- Reciprocal Equalization Curves (Cut/Boost)
- Resolution (Expanded 600 Cut/Boost)



Patents Pending

Well established in major studios internationally, the EOF-2 is available through the worldwide sales offices of Apex Systems Ltd.

To fix that difficult guitar or that impossible bass drum, or simply to get that “just right” sound, the EOF-2 has proven itself to be a powerful I and creative tool.

The design engineers at Apex are also experienced musicians and studio personnel, and they listen to what they design. One cannot determine what a piece of gear sounds like by looking at a graph. The EQF-2’s curves were chosen for the way they sounded not how they looked. The “music first” philosophy carries through all Apex products, because good music is what it’s all about in the first place.

SPECIFICATIONS

INPUT SPECIFICATIONS:

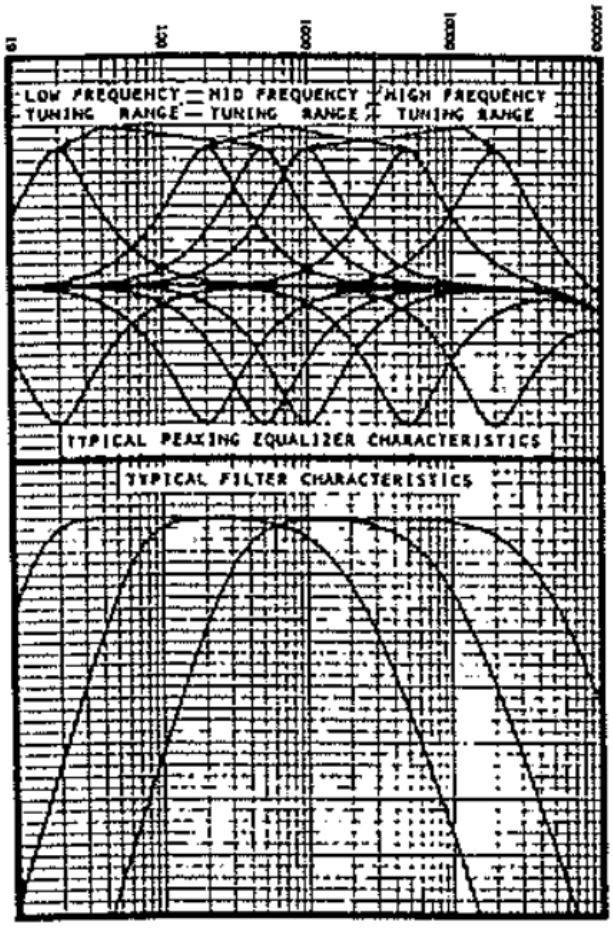
HIGH LEVEL INPUT Z = 34K OHM; MAXIMUM INPUT LEVEL = +30dBm LOW LEVEL INPUT Z = IK OHM; MAXIMUM
INPUT LEVEL = +20dBm

OUTPUT SPECIFICATIONS:

HIGH LEVEL OUTPUT AT CLIPPING = +30dBm L.OW LEVEL OUTPUT AT CLIPPING = +20dBm NOISE OUTPUT (INPUT SHORTED) HIGH LEVEL OUT = 93dBm LOW LEVEL OUT = -103dBm
TRANSFORMER (OUTPUT) RJE. 123 AL (OPTIONAL) (OUTPUT SPECIFICATIONS WITH BIPOLAR 16 VOLT SUPPLY.)

FREQUENCY RESPONSE:

EQUALIZERS AND FILTERS OUT OF CIRCUIT +0.1 dB, 10 TO 20,000 HZ. EQUALIZERS AND FILTERS IN CIRCUIT, MIN. 1MUM EQUALIZATION, MAXIMUM BANDWIDTH: -1 dB, 20 TO 20,000 HZ. FILTER AND EQUALIZER **CHARACTERISTICS:**
HIGH PASS TUNING (2ND ORDER BUTTER WORTH); = 20 TO 500 HZ FLAT PASS BAND.
LOW PASS TUNING (2ND ORDER BUTTER WORTH) I TO 20 KHZ FLAT PASSBAND, LOW FREQUENCY EQUALIZER: 25 HZ TO $00 Hz ±12dB (PEAKING & SHELVING) MID FREQUENCY EQUALIZER: 250 TO 5,000 Hz ±12dB
HIGH FREQUENCY EQUALIZER: I KHZ TO 20 KHz ±12dB (PEAKING & SHELVING) TRUE RECIPROCAL BOOST/CUT SWITCHING ON ALL THREE EQ RANGES. SEPARATE EQUALIZER AND FILTER IN/OUT SWITCHING,



DISTORTION AND TRANSIENT RESPONSE:

HARMONIC AND L.M. DISTORTION ARE LESS THAN 0.I%
SLEW RATE: GREATER THAN IO VOLTS PER MICROSECOND.
OVERSHOOT ANT. RINGING: NEGLIGIBLE, WITH OR WITHOUT LOADING

MECHANICAL DATA:

THE EQF-2 I AN ELECTRO-MECHANICAL RETROFIT FOR AENGUS, APSI, AUTO-. MATED PROCESSES, MODULAR AUDIO PRODUCTS, AND MELCOR EQUALIZERS. FRONT PANEL: 5.25 IN » LS IN, (13.3 CM. 3.8 CM.)
DEPTH: 6 IN. (5.2 CM.)
WEIGHT: 2 LB. (0.9 KG.)

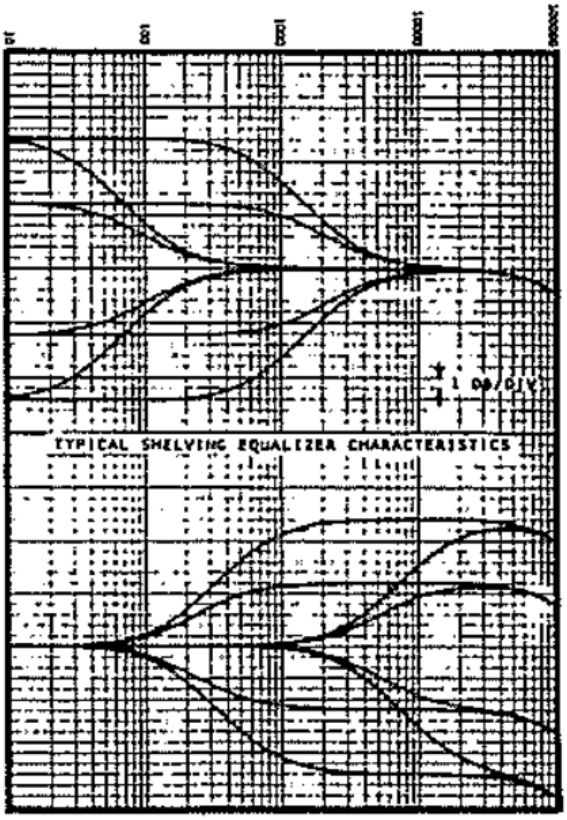
POWER REQUIREMENTS:

±12VOLTS TO ±I8 VOLTS AT 75MA MAXIMUM CURRENT AND 1% OR BETTER RIPPLE.

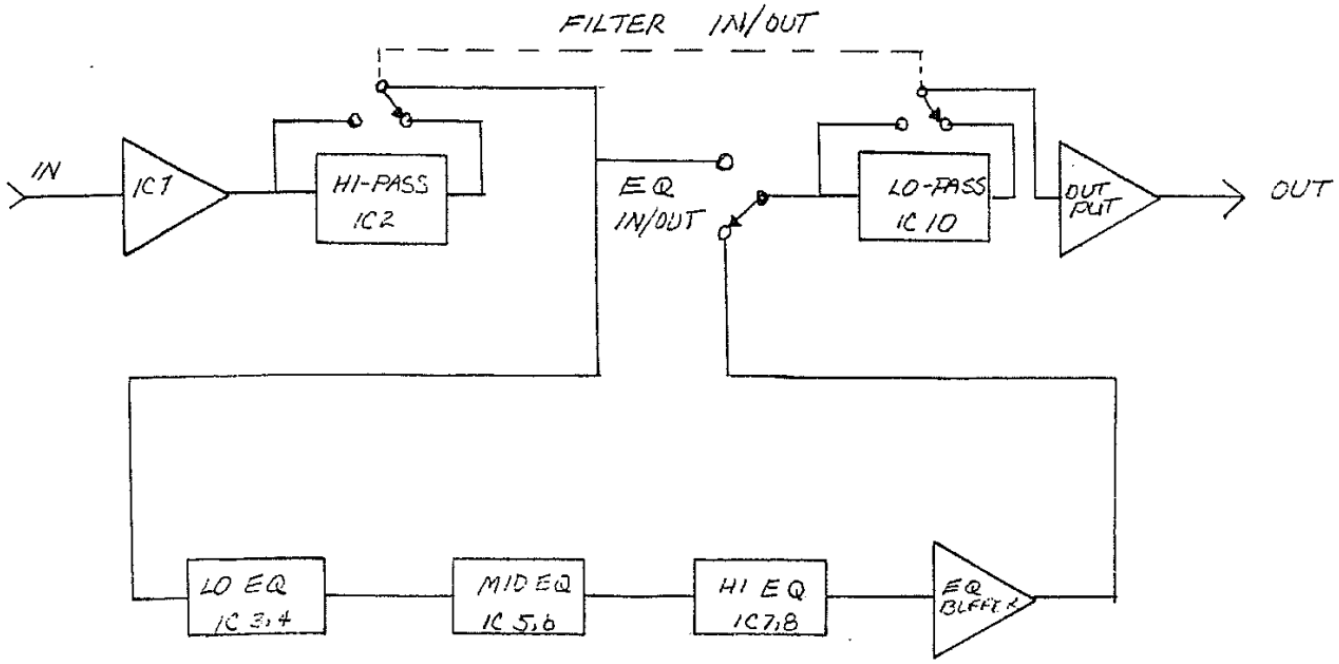
EDGE CONNECTOR:
I5 PIN, A4MM SPACING

1	CHASSIS GND
2	HIGH LEVEL OUTPUT
3	LOW LEVEL OUTPUT
4	OUTPUT LOW SIDE
5	POWER COMMON
6	SPARE
7	SPARE
8	INPUT Low SIDE
9	LOW LEVEL INPUT
10	HIGH LEVEL INPUT
11	GAIN TRIM
12	POWER IN
13	POWER SUPPLY
14	COMMON
15	POWER IN
16	SPARE

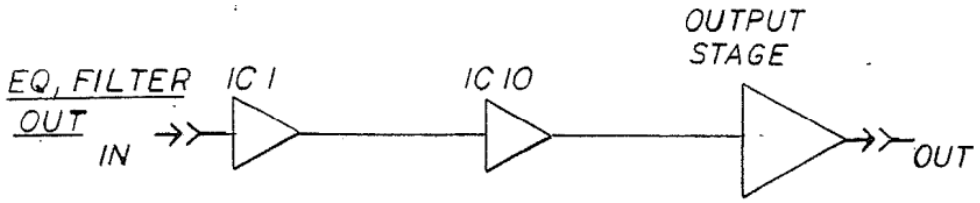
GAIN ADJUSTMENT IS ACCOMPLISHED BY
RESISTOR TO POWER COMMON. GAIN INCREASES AS FOLLOWS
4.7K = +2dB, 16K + +4 dB,
0.62K = +6dB, 0.IK = +8 dB

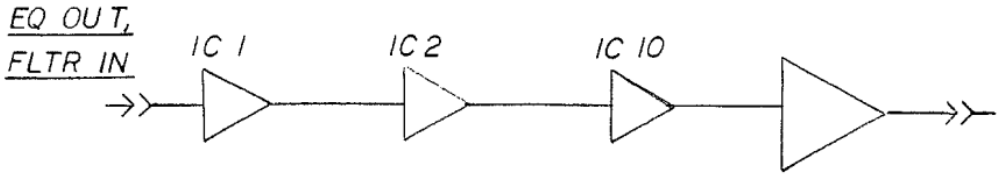


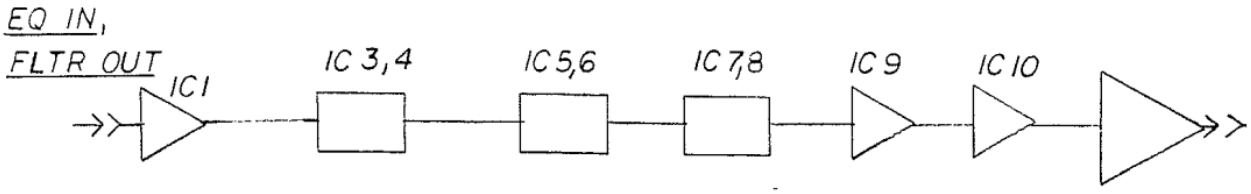
EOF-2 BLOCK DIAGRAM

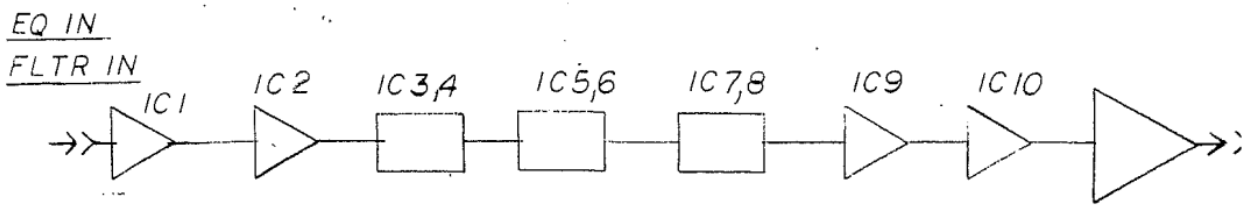


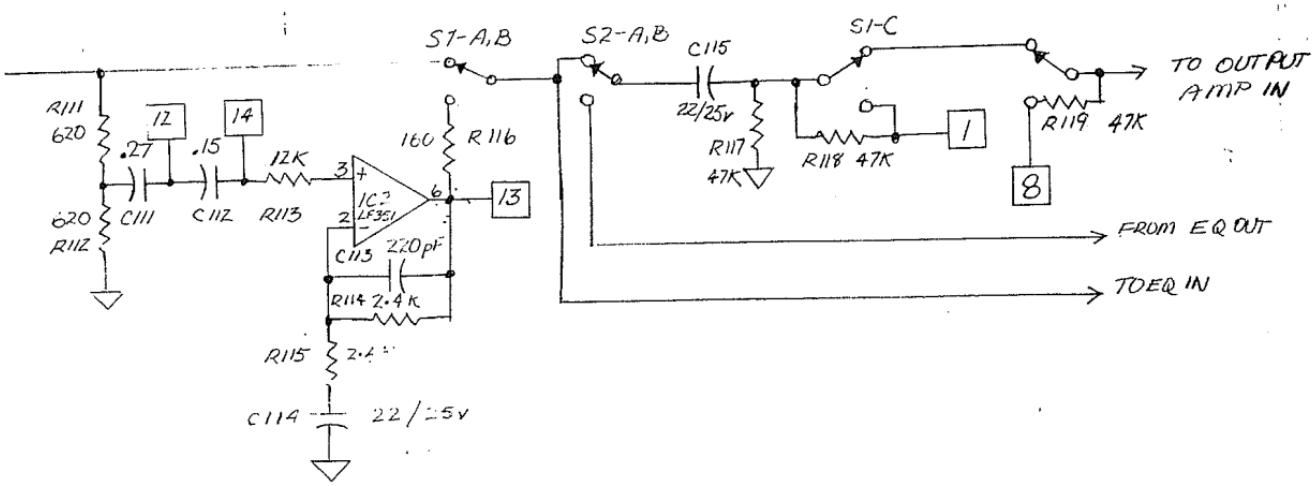
EO-F 2 SIGNAL PATH

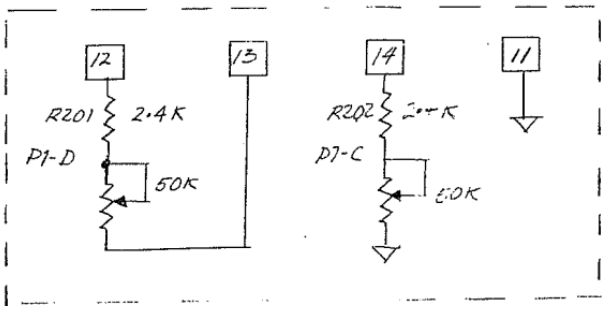

EQ, FILTER OUT
IN
IC 1
IC 10
OUTPUT STAGE
OUT


EQ OUT, FLTR IN
IC 1
IC 2
IC 10

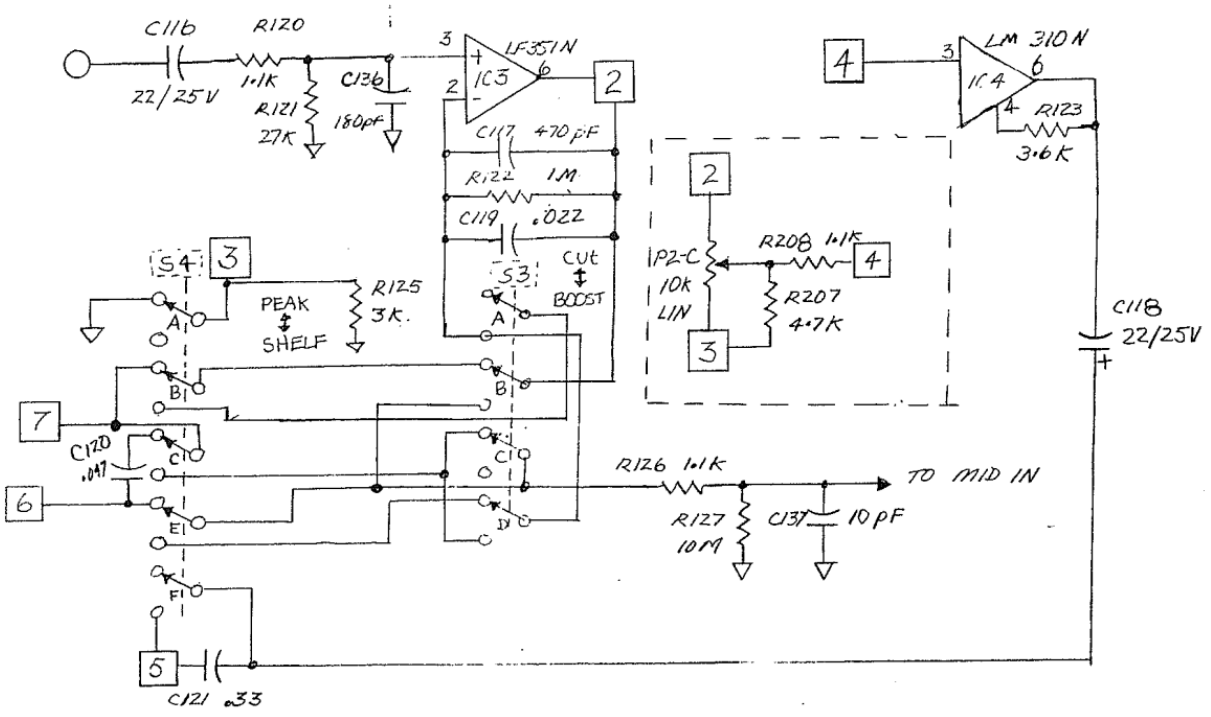

EQ IN, FLTR OUT
IC1
IC 3,4
IC 5,6
IC 7,8
IC 9
IC 10


EQ IN
FLTR IN
IC 1
IC 2
IC 3,4
IC 5,6
IC 7,8
IC 9
IC 10

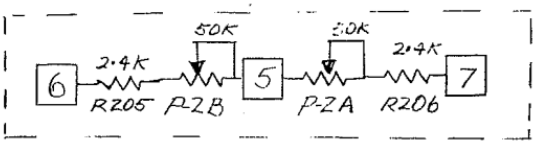

S1-A,B
S2-A,B
C115
S1-C
TO OUTPUT AMP IN
R111 620
.27
.15
12K
R116 160
22/25v
R117 47K
R118 47K
R119 47K
620 R112
C111
C112
R113
IC2 LF351
C113 220pF
R114 2.4K
R115 2.4K
C114 22/25v
FROM EQ OUT
TO EQ IN

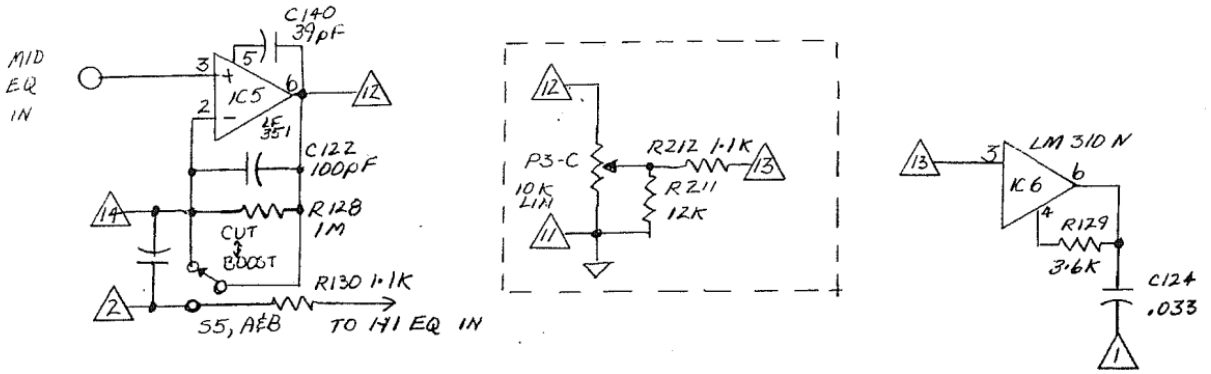

R201 2.4K
P1-D
50K
R202 2.4K
P1-C
50K

EQF-2
HI PASS

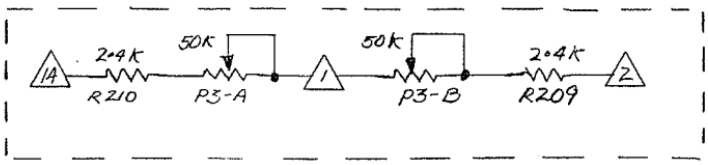


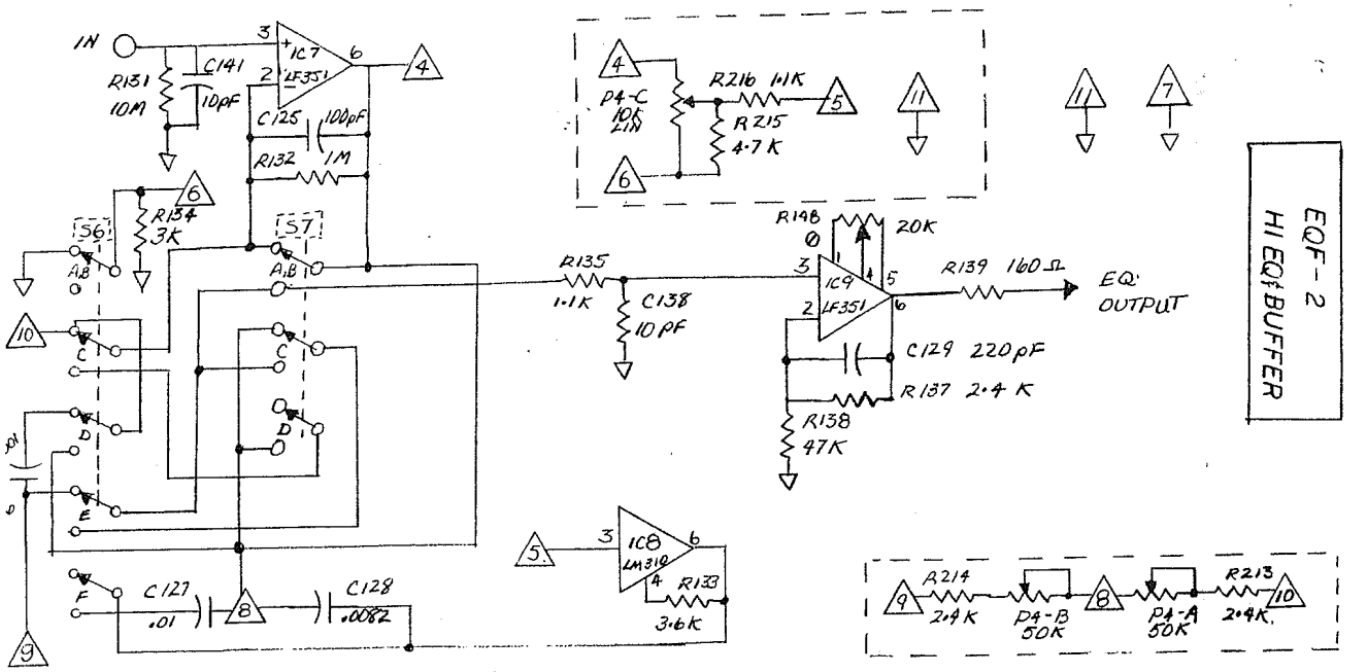
EQF-2
LOW EQ

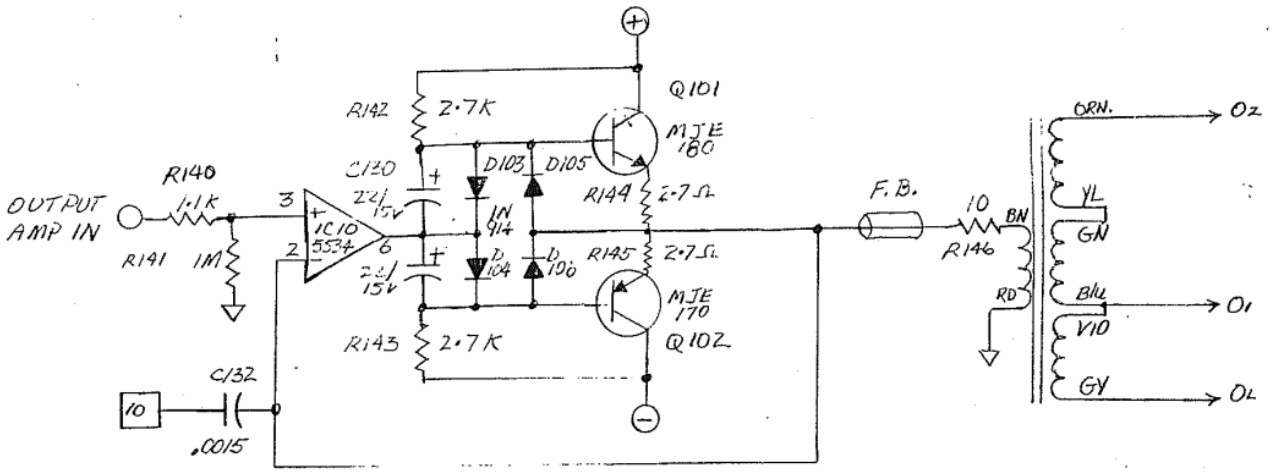


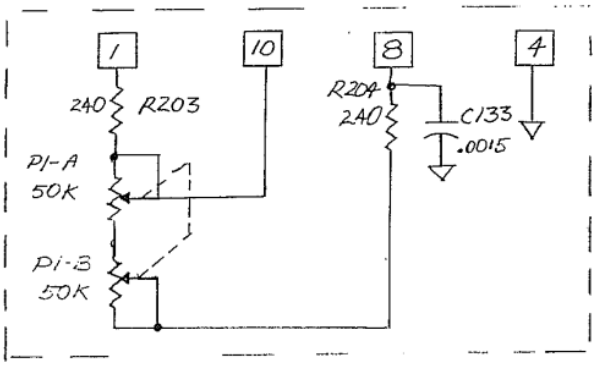


EQF-2
MID EQ




IN
R131 10M
C141 10pF
IC7 LF351
C125 100pF
R132 1M
R134 3K
S6
S7
A,B
C
D
E
F
C127 .01
C128 .0082
R135 1.1K
C138 10pF
IC9 LF351
R148 20K
R139 160Ω
EQ. OUTPUT
C129 220pF
R137 2.4K
R138 47K
IC8 LM310
R133 3.6K
R216 1.1K
P4-C 10K LIN
R215 4.7K
R214 2.4K
P4-B 50K
P4-A 50K
R213 2.4K
EQF-2 HI EQ & BUFFER


OUTPUT AMP IN
R140 1.1K
R141 1M
IC10 5534
C130 22µ/15V
C132 .0015
R142 2.7K
R143 2.7K
Q101 MJE 180
Q102 MJE 170
D103 D105 IN 914
D104 D106
R144 2.7Ω
R145 2.7Ω
F.B.
10 R146
ORN. OZ
YL
GN
BN
BLU OI
VIO
RD
GY OL


R203 240
P1-A 50K
P1-B 50K
R204 240
C133 .0015
EQF-2 LO PASS, OUTPUT

-R101	15K
-R102	15K
-R103	24K
-R104	1.1K
-R105	10K
-R106	1.1K
-R107	2.4K
-R108	910
-R109	20K
-R110	Jumper
-R111	620
-R112	620
-R113	12K
-R114	2.4K
-R115	2.4K
-R116	160
-R117	47K
-R118	47K
-R119	47K
-R120	1.1K
-R121	27K
-R122	1M
-R123	3.6K
-R124	OMIT
-R125	3K
-R126	1.1K
-R127	10M
-R128	1M
-R129	3.6K
-R130	1.1K
-R131	10M
-R132	1M
-R133	3.6K
-R134	3K
-R135	1.1K
-R136	10M
-R137	2.4K
-R138	47K
-R139	160
-R140	1.1K
-R141	1M
-R142	2.7K
-R143	2.7K
-R144	2.7
-R145	2.7
-R146	10
-R147	20K Trimmer
-R148	20K Trimmer

-R201	2.4K
-R202	2.4K
-R203	240
-R204	240
-R205	2.4K
-R206	2.4K
-R207	4.7K
-R208	1.1K
-R209	2.4K
-R210	2.4K
-R211	12K
-R212	1.1K
-R213	2.4K
-R214	2.4K
-R215	4.7K
-R216	1.1K

-D101	IN4001
-D102	IN4001
-D103	IN914B
-D104	IN914B
-D105	IN914B
-D106	IN914B
-D107	IN914B
-Q101	MJE171
-Q102	MJE171

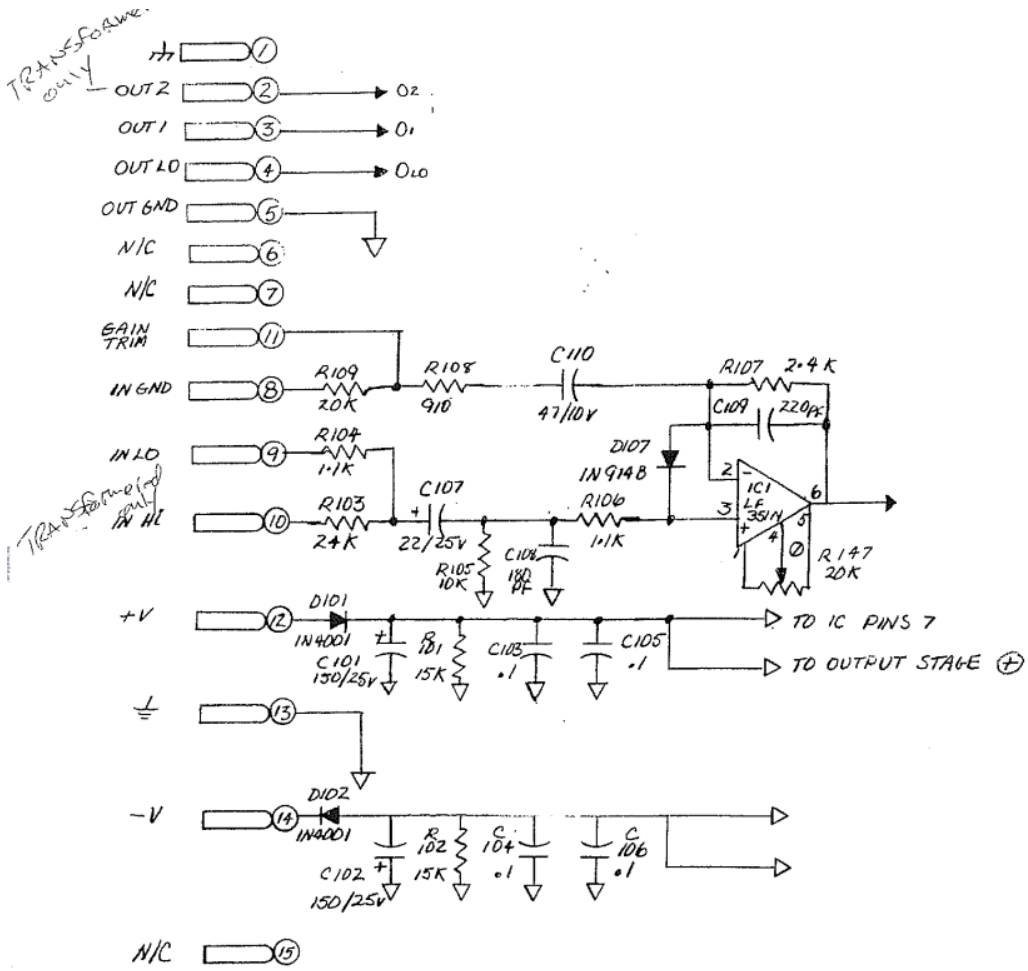
-L101	FB-2

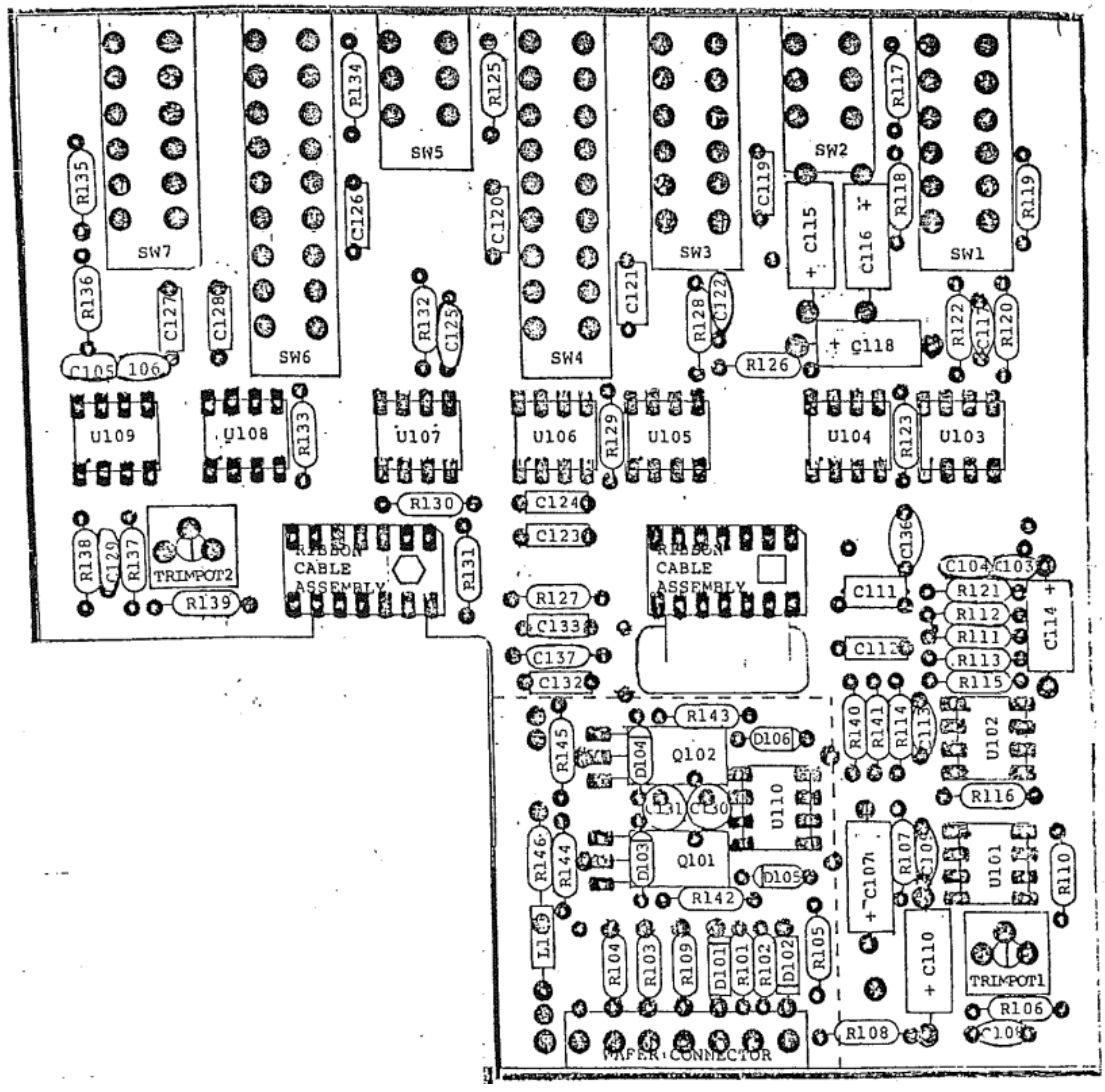
-IC101	LF351N
-IC102	LF351N
-IC103	LF351N
-IC104	LM310N
-IC105	LF351M
-IC106	LM310N
-IC107	LF351N
-IC108	LM310N
-IC109	LF351N
-IC110	NE5534N or LF351N (opt T)

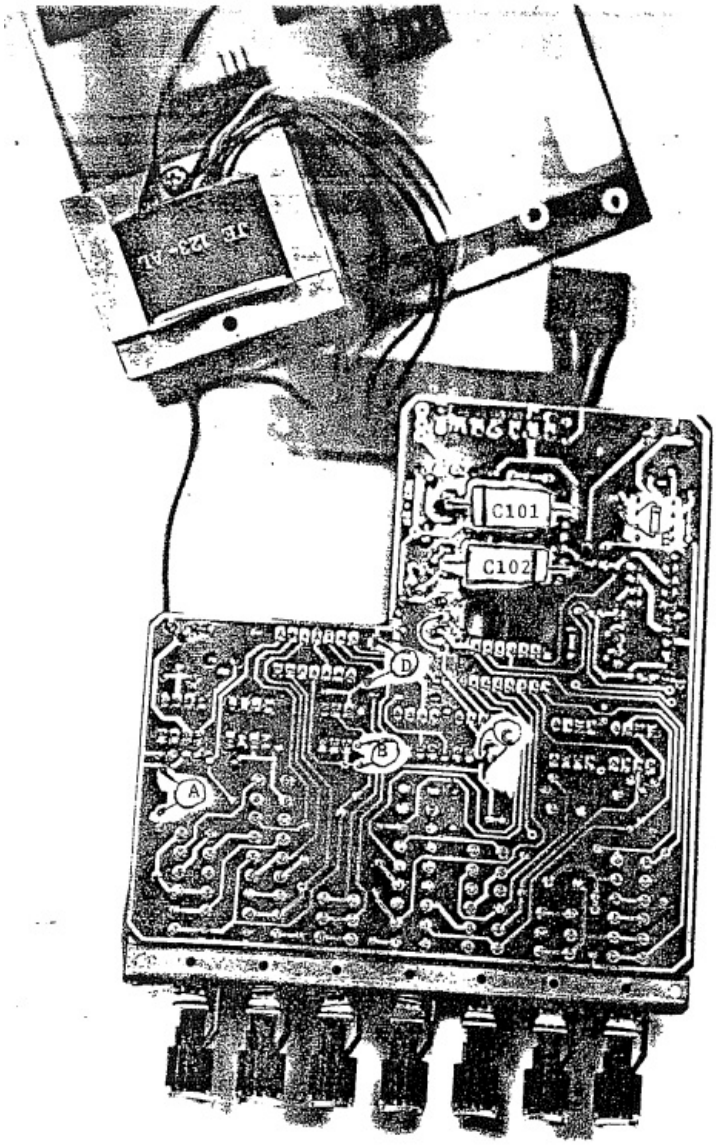
-C101	150uf 25V	E
-C102	150uf 25V	E
-C103	0.1uf 50V	M
-C104	0.1uf 50V	M
-C105	0.1uf 50V	M
-C106	0.1uf 50V	M
-C107	22uf 25V	E
-C108	180pf	D
-C109	220pf	D
-C110	47uf 10V	E
-C111	0.27uf100V	S
-C112	0.15uf100V	S
-C113	220pf	D
-C114	22uf 25V	E
-C115	22uf 25V	E
-C116	22uf 25V	E
-C117	470pf	D
-C118	22uf 25V	E
-C119	0.022uf100V	S
-C120	0.047uf100V	S
-C121	0.33uf 100V	S
-C122	100pf	D
-C123	0.0047uf250V	S
-C124	0.033uf100V	S
-C125	100pf	D
-C126	0.001uf250V	S
-C127	0.01uf 100V	S
-C128	0.0082uf250V	S
-C129	220pf	
-C130	22uf 15V	T
-C131	22uf 15V	T
-C133	0.0015uf250V	S
*-C134	1000uf4V	E
*-C135	10pf	D
-C136	180pf	D
-C137	10pf	D
-C138	10pf	D
-C139	56pf	D
-C140	39pf	D
-C141	10pf	D

M = Monolythic
D = Disc ceramic
S = Stacked foil
T = Tantalum
E = Electrolytic

EQF-2
INPUT & EDGE CONN.







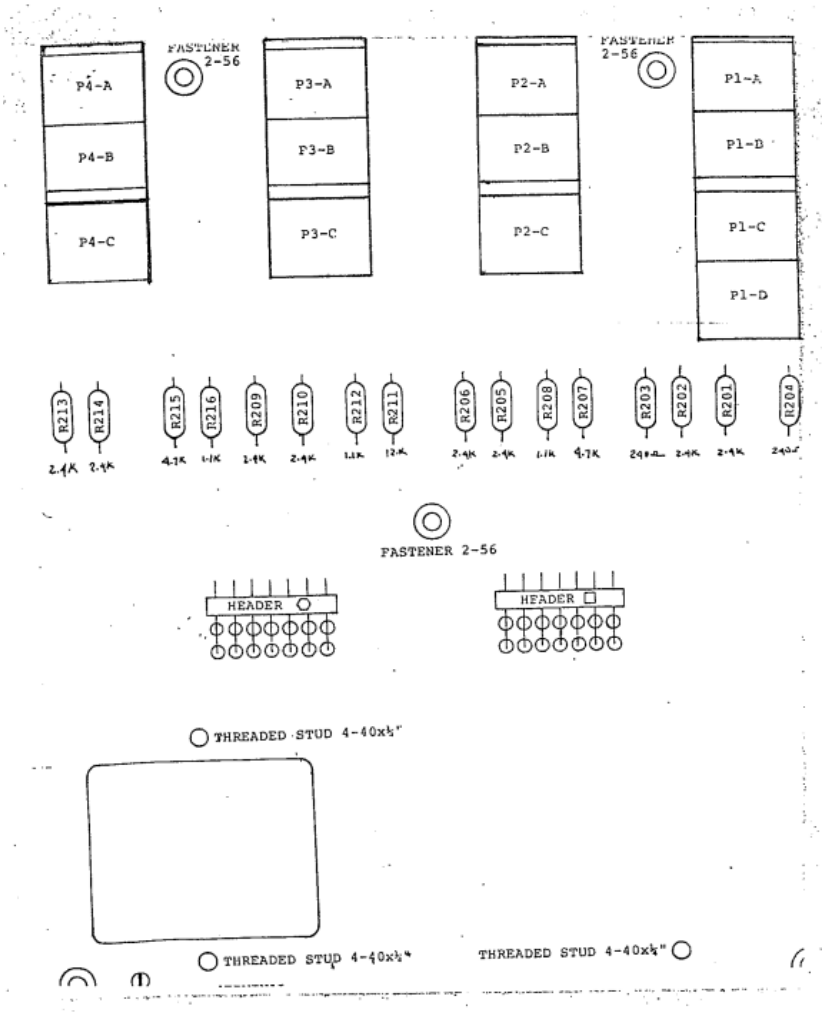
A C138

B C139

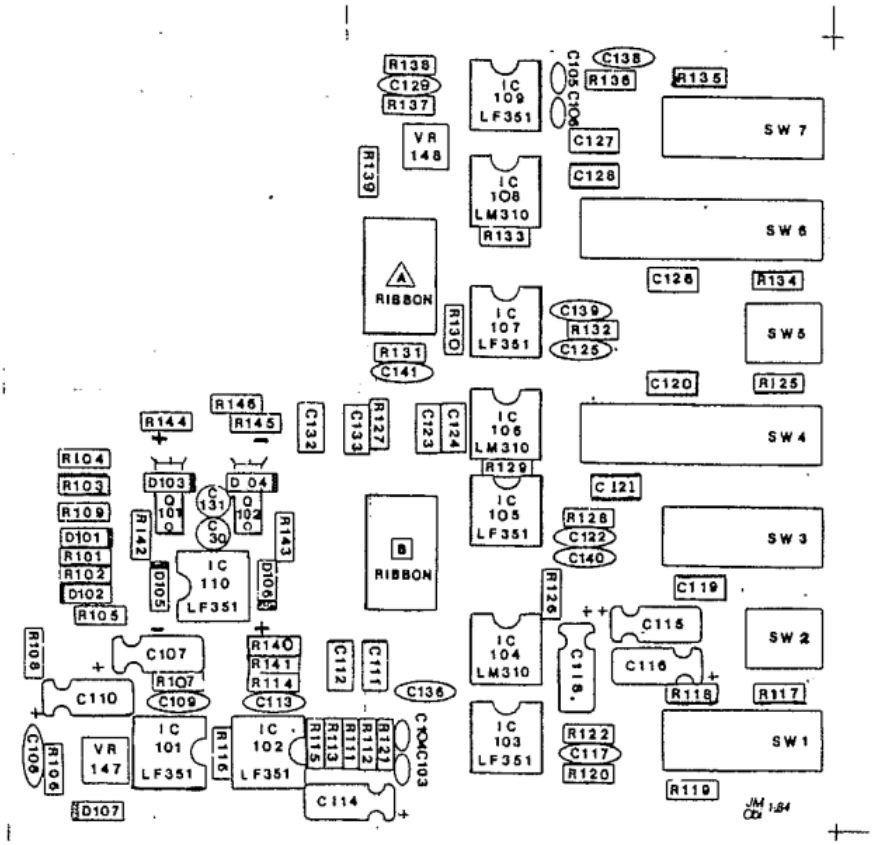
C C140

D C141

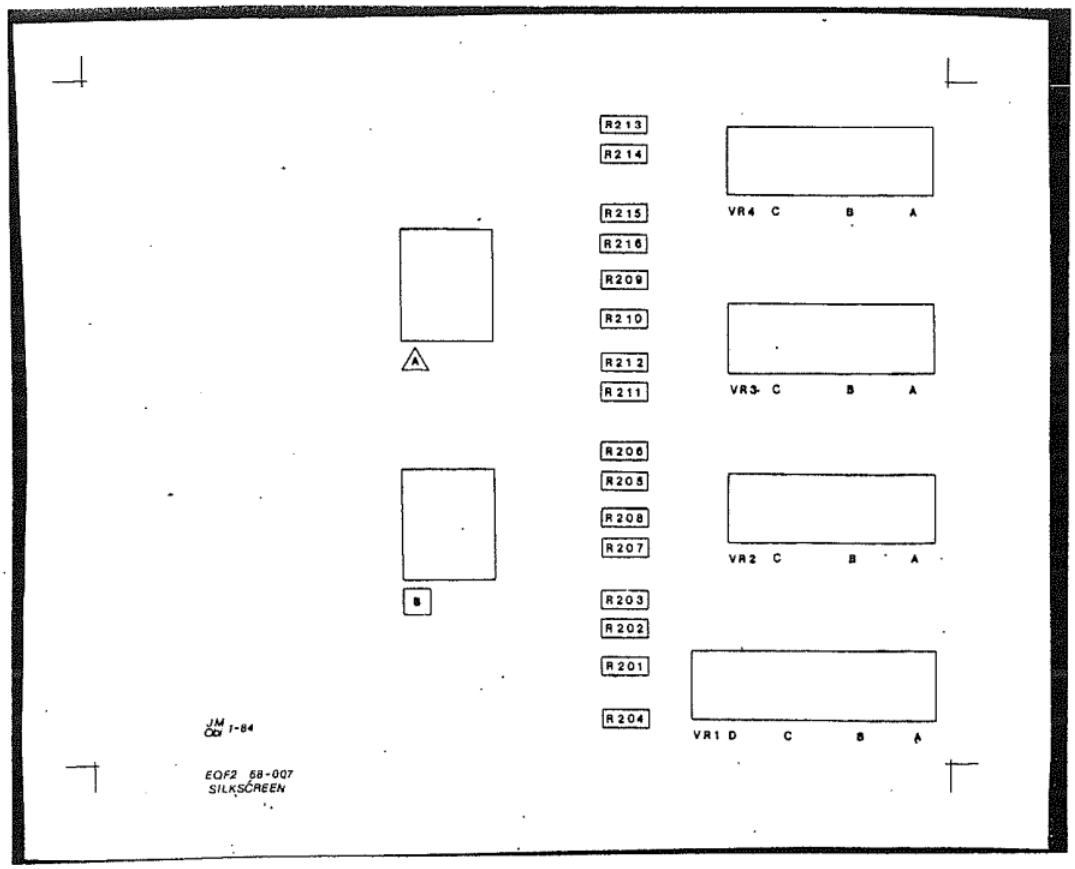
E D107



EQF-2 BOTTOM CARD

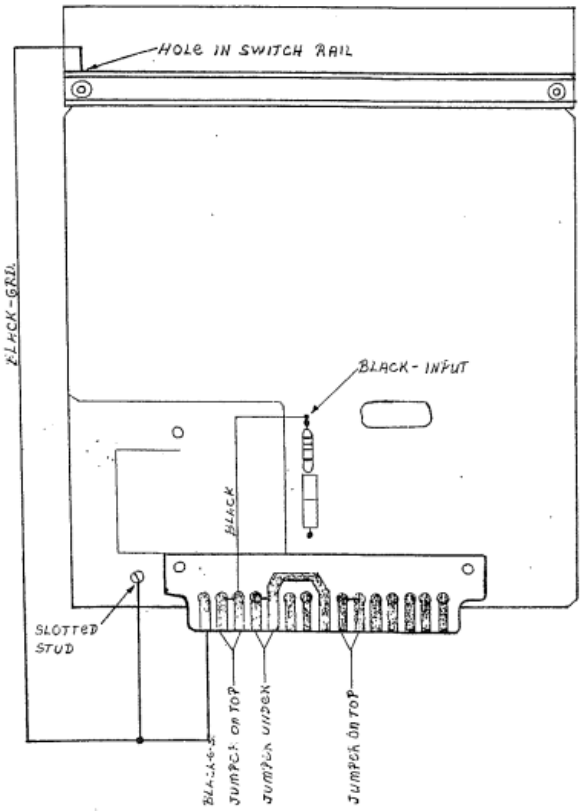


PARTS LAYOUT



NO TRANSFORMER

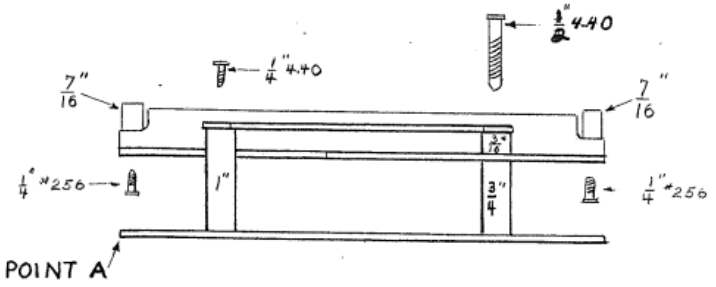
EQF-2 NO TRANSFORMER



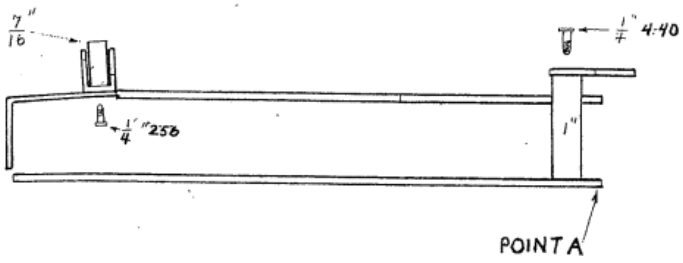
WIRING DIAGRAM

DWG. BY
K L.

EQF-2 NO TRANSFORMER



BACK VIEW

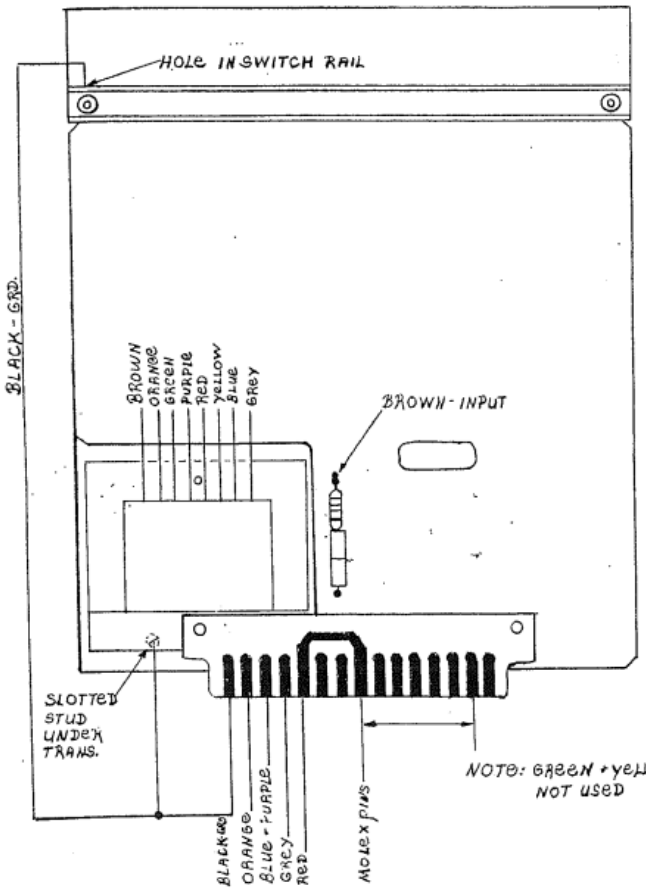


SIDE VIEW

SCREW & SPACER DESIGNATIONS

DWG. BY
K. L.

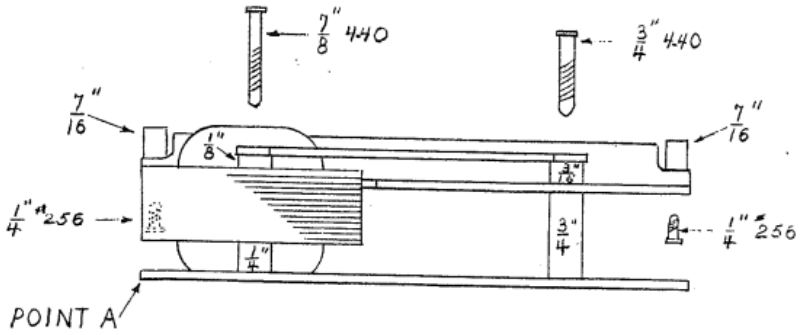
EQF-2 TRANSFORMER



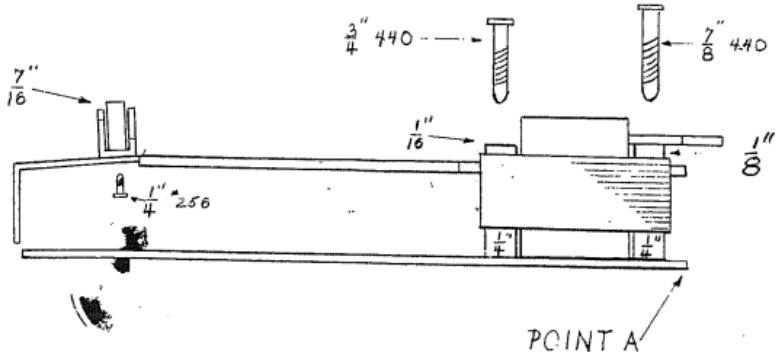
WIRING DIAGRAM

DWG. BY
K. L.

EQF-2 TRANSFORMER



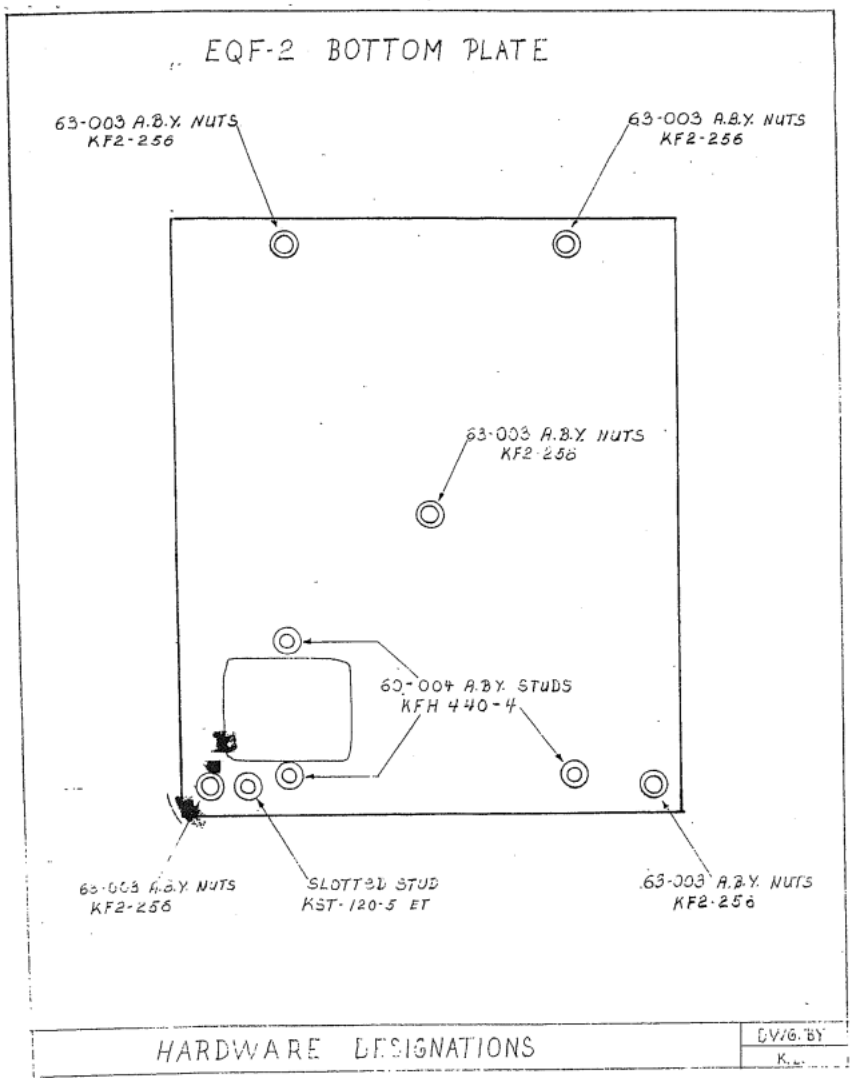
BACK VIEW



SIDE VIEW

SCREW + SPACER DESIGNATIONS

DWG. BY
K. L.



DC OFFSET CALIBRATION PROCEDURE

If it ever becomes necessary to replace one of the op-amps, this procedure will re-null the overall d.e. offset of the EQF-2. See drawing for test points.

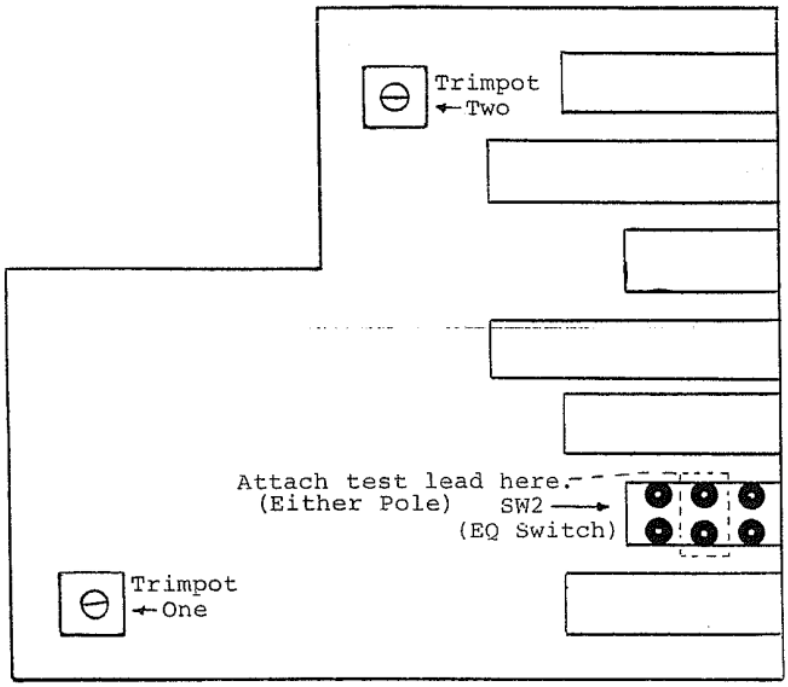
1. Attach noise filter to input of oscilloscope.
2. Set scope on 5mv. per division scale and DC.
3. Ground scope to an audio Gnd. on EQF-2 test cable.
4. Turn all EQ knobs fully clockwise.
5. Attaches. lead from noise filter on scope to either of the center pins of SW2 (“EQ” switch) on EQF-2.
6. Engage “Filter” on EQF-2 and adjust “Position” knob on scope for center or “p’ line of the screen. This is your DC reference.
7. Disengage “Filter” and adjust ‘Trumpet One” on EQF-2 so line matches with reference. When aligned properly, line will not move when ‘Filter” is engaged/disengaged.
8. Engage “EQ” on EQF-2 and adjust ‘Trumpet Two” so line matches with reference. (As in step #7).
9. Double check that when “EQ” or “Filter” is engaged or disengaged the line stays stationary.

NOTES ON ABOVE

1. If DC is so far out of alignment that it cannot be calibrated by either trimpot, try swapping some of the #351 IC’s around (usually #2 with #9 or ll with #9 works best). After moving IC’s around re-calibrate DC.

2. If possible, avoid calibrating so trimpot is at end stops. You should have enough adjustment left in trimpot to be able to pass reference line by at least 5mv. If this is not possible see “Note One”.

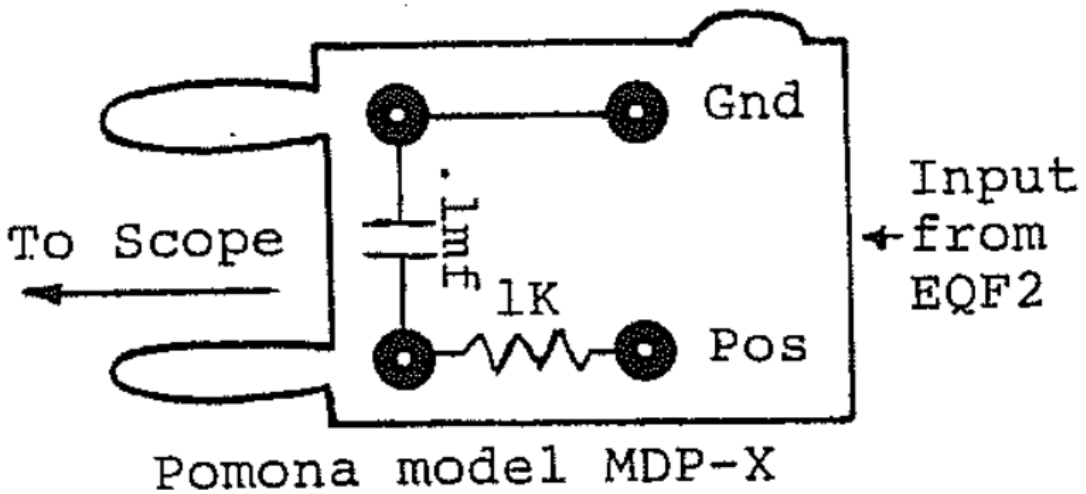
EQF-2 DC OFFSET ILLUSTRATIONS



EQF2 TOP CARD

DC CALIBRATION HINT

To aid in getting accurate DC readings with high scope sensitivity, we recommend constructing a simple low pass (noise) filter as described below .

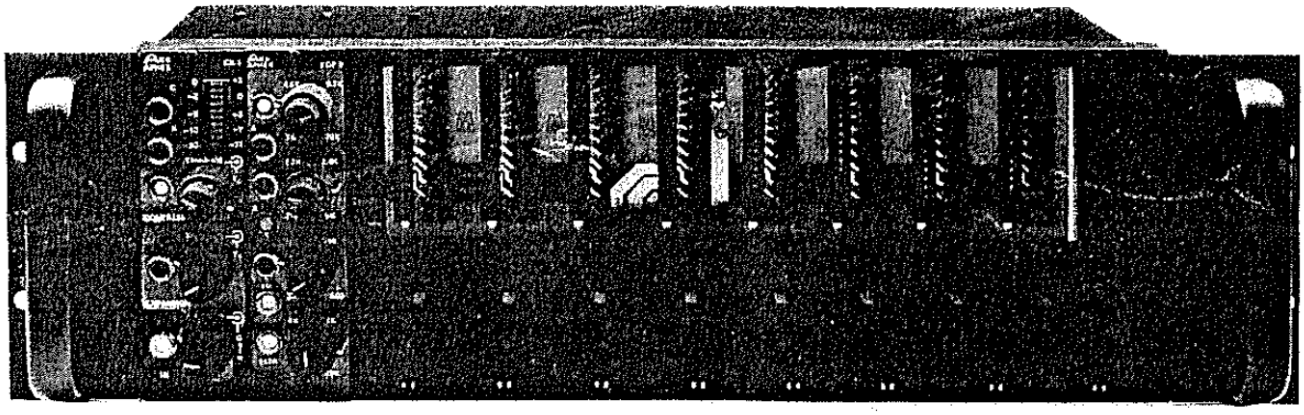


APH€X SYSTEM LTD.

ITEM	PRICE EACH	
APHEX II BROADCAST / STUDIO AURAL EXCITER	Stereo	Mono
1 - 3	$2950	$2350
4 - 7	2750	2200
8 - up	2600	2100
EQF-2 Five Band Parametric Equalizer/ Filter with Jensen Transformer (+30 dBm Output)		
1 - 7	$549	
8 - 15	525	
16 - up	495	
without transformer (+20dBm Output) deduct $20.00.		
CX-1 Compressor/Expander		
Same price breaks as EQF-2 above	$549	
R-1 Rack for ten EQF-2's or CX-1's above	$195	
PS-1 Rackmount Power Supply for R-1 ±16V @3.4A	$275	
4B-1 Self-Powered 4 Module Rack	$349	
2521 Operational Module		
1 - 49	$35	
50 - 99	27.50	
100- up	22.50	

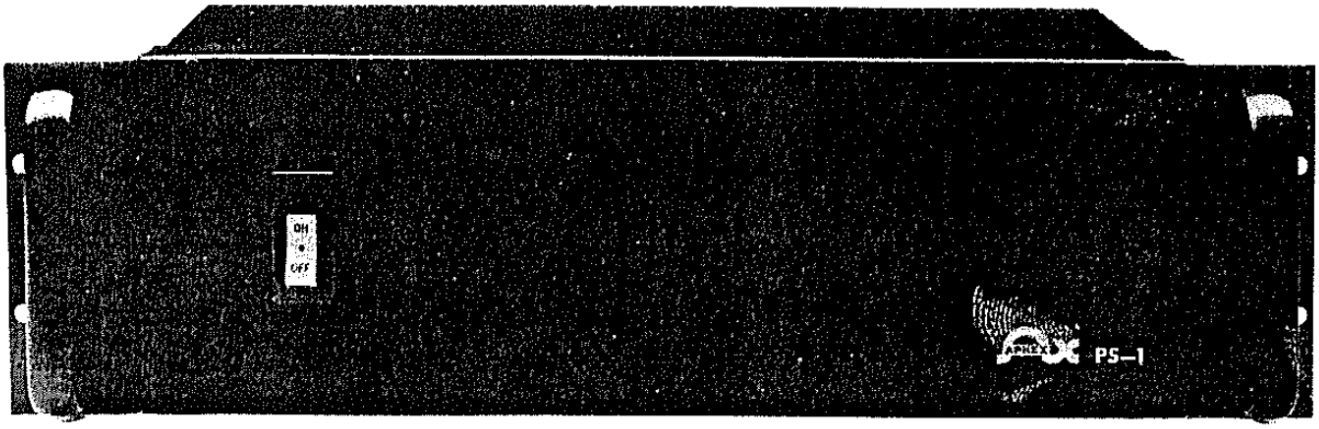
OAS-24 Outboard Grouping System

	Rack Mount	In Portable Case
OAS-24 (9 Control Module, 1 master 24 VCA's)	$7,800	$8,000
Replacement VCA Modules.....	$150	
Control Module.....	300	



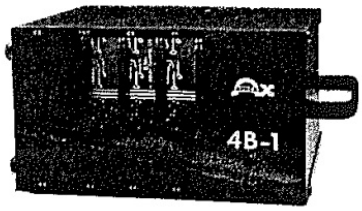
R-1 MODULAR INTERFACE

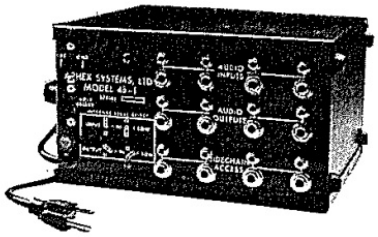
The R-1 is a compact rack mount package designed to hold ten EOF-2 or CX-1 size packages. The R-1 backplane provides barrier strip access to all inputs and outputs; power and ground are bussed.



PS1 POWER SUPPLY

The PS-1 is a rack mount power supply designed to complement the R-1 in looks and function. Its ± 16V @3.0 Amps will adequately power anything the RR-1 can hold. Your modules are protected by built – in Over Voltage Protection and illuminated circuit breaker/power switch.





- SUPPORTS 4 APHEX AUDIO MODULES
- ALL PATCH POINTS ON REAR (¼" and T-T SIZES)
- SELF-POWERED FOR 115-230V
- EXTREMELY COMPACT AND PORTABLE FOR THE ENGINEER/PRODUCER ON THE GO
- HI/LO LEVEL SELECT FOR EACH INPUT/OUTPUT

SPECIFICATIONS

DC SUPPLY –REGULATED ± 16V @ 500mA
POWER REQUIREMENTS- 115-230 V.A.C., 25 WATTS
SIZE -5. 75″ H x 11 WX 7 .75″ D (EXCL. KNOBS)
WEIGHT- (EMPTY) 9 lbs., 2 oz.

4B-1 SELF POWERED
MODULAR MINI-RACK
7801 Melrose Avenue · Los Angeles, California 90046·(213) 655-1411·
TWX: 910-321-5762

Documents / Resources

	**APHEX EQF-2 Parametric Equalizer Filter** [pdf] User Manual EQF-2 Parametric Equalizer Filter, EQF-2, Parametric Equalizer Filter, Equalizer Filter, Filter

References

- MH **Search - Manual-Hub.com**