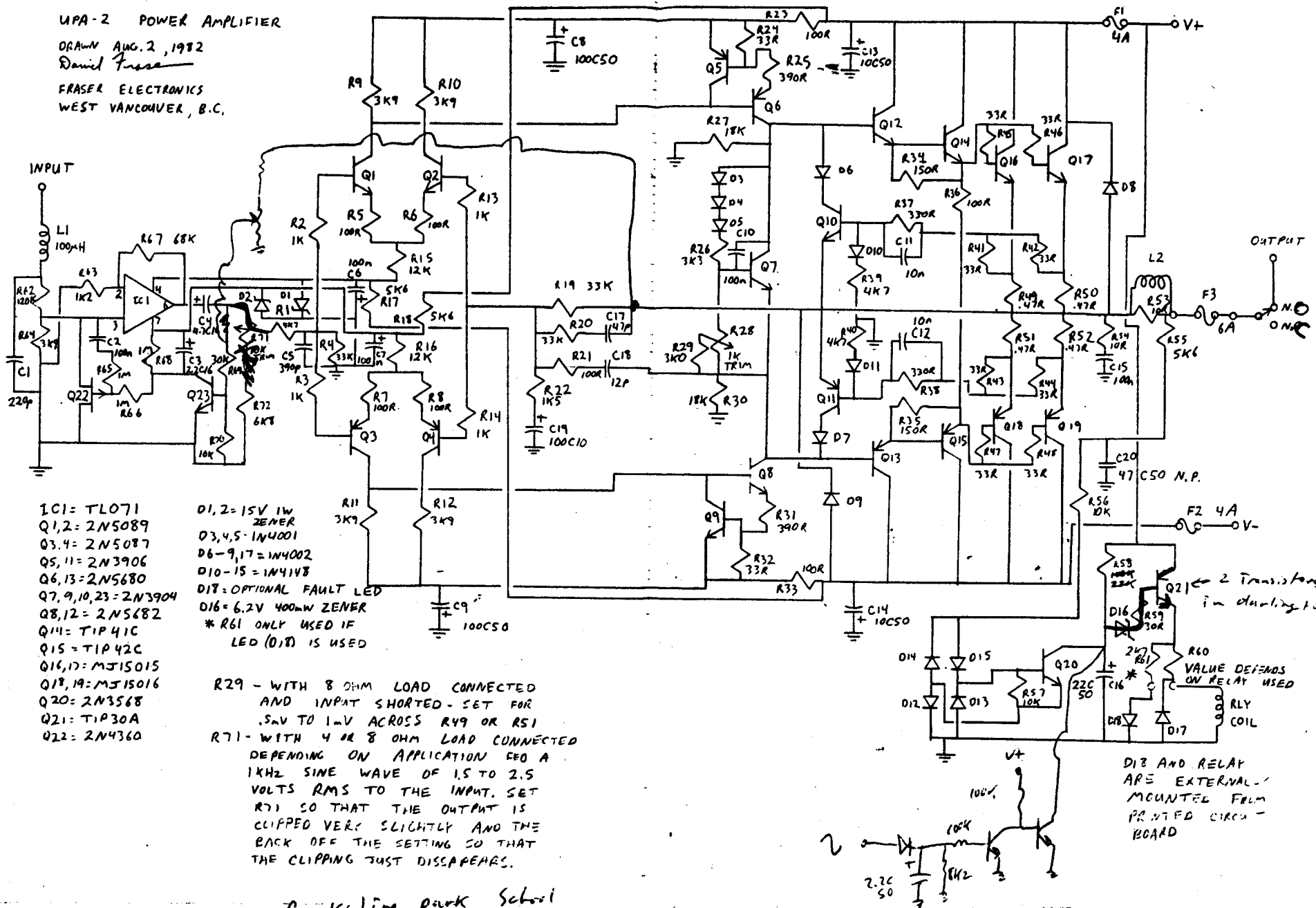


UPA-2 POWER AMPLIFIER

DRAWN AUG. 2, 1982

David Fosse

FRASER ELECTRONICS
WEST VANCOUVER, B.C.



- IC1 = TL071
- Q1,2 = 2N5089
- Q3,4 = 2N5087
- Q5,11 = 2N3906
- Q6,13 = 2N5680
- Q7,9,10,23 = 2N3904
- Q8,12 = 2N5682
- Q14 = TIP 41C
- Q15 = TIP 42C
- Q16,17 = MJ15015
- Q18,19 = MJ15016
- Q20 = 2N3568
- Q21 = TIP 30A
- Q22 = 2N4360

- D1,2 = 15V 1W ZENER
- D3,4,5 = 1N4001
- D6-9,17 = 1N4002
- D10-15 = 1N4148
- D18 = OPTIONAL FAULT LED
- D16 = 6.2V 400mW ZENER
- * R61 ONLY USED IF LED (D18) IS USED

R29 - WITH 8 OHM LOAD CONNECTED AND INPUT SHORTED - SET FOR .5mV TO 1mV ACROSS R49 OR R51

R71 - WITH 4 OR 8 OHM LOAD CONNECTED DEPENDING ON APPLICATION FEED A 1KHZ SINE WAVE OF 1.5 TO 2.5 VOLTS RMS TO THE INPUT. SET R71 SO THAT THE OUTPUT IS CLIPPED VERY SLIGHTLY AND THE BACK OFF THE SETTING SO THAT THE CLIPPING JUST DISAPPEARS.

Q21 ← 2 Transistors in dual in-line

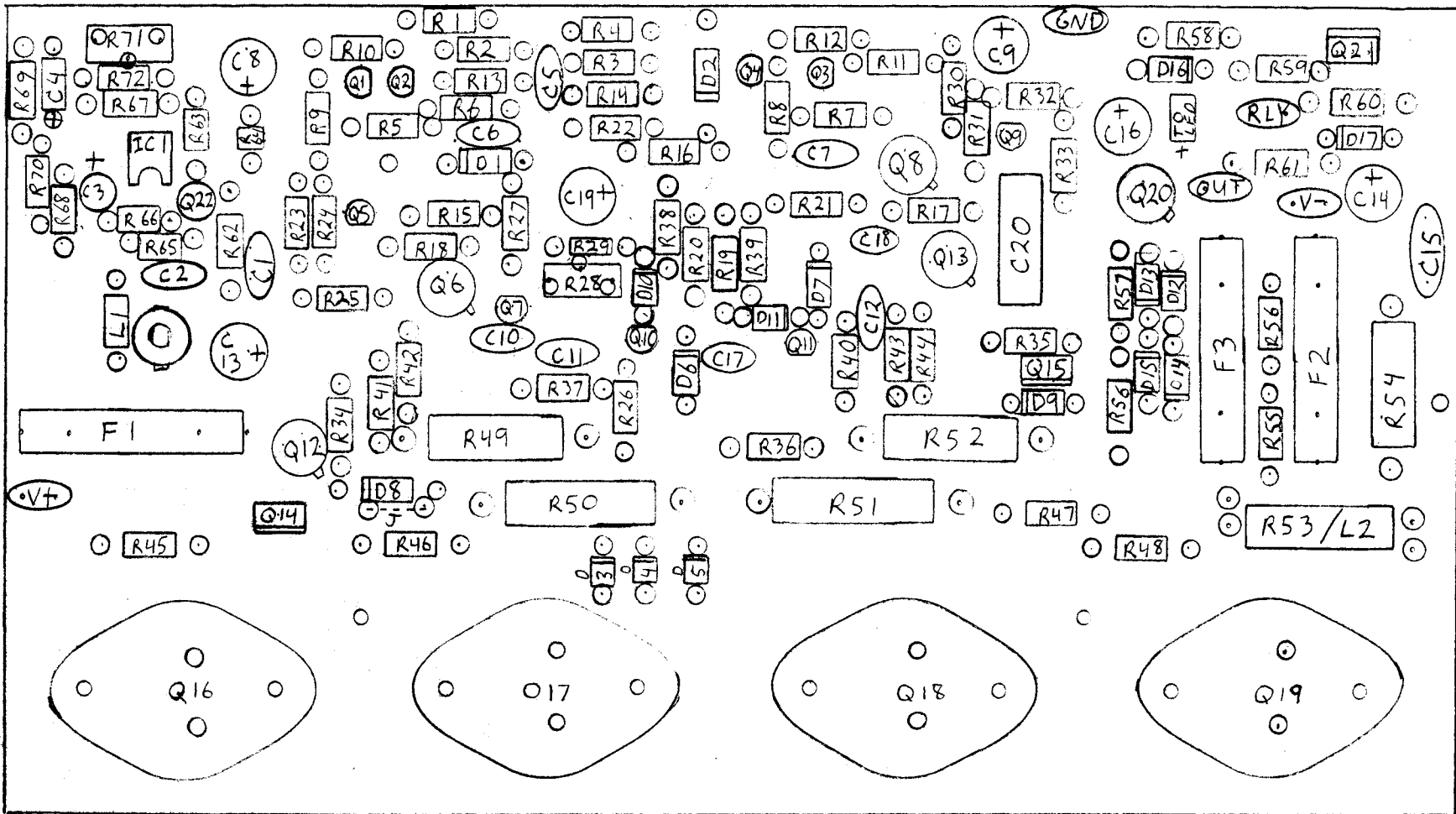
R60 VALUE DEPENDS ON RELAY USED

D18 AND RELAY ARE EXTERNAL - MOUNTED FROM PRINTED CIRCUIT BOARD

Berkshire Park School
GEM BOOSTER AMP

Mod. Sept 3/91
DF

UPA-2 AMP PARTS LAYOUT



UPA-2 Amplifier Parts List

RESISTORS

			Spacing
0 Ohm 18 Ga.	1	R53	1.15"
.47 or .51/5W	2	R49,52	1.15"
.47 or .51/5W	2	R50,51	1.25"
10R 1W	1	R54	1.00"
22 or 33R 1/2W	4	R45,46,47,48	.6"
33R 1/4W	2	R24,32	.5"
33R 1/2W	4	R41,42,43,44	.5"
100R 1/2W	4	R21,23,33,36	.5"
100R 1/4W	4	R5,6,7,8	.5"
300R 1/4W	1	R26	.5"
330R 1/2W	2	R37,38	.5"
390R 1/4W	2	R25,31	.5"
390R 1/2W	1	R29	.4"
1K0 Trimmer	1	R28	Vertical
1K0 1/4W	4	R2,3,13,14	.5"
1K5 1/4W	1	R22	.5"
3K9 1/4W	4	R9,10,11,12	.5"
4K7 1/4W	1	R1	.5"
4K7 1/2W	2	R39,40	.5"
5K6 1/2W	2	R17,18	.5"
12K 1/4W	1	R15	.5"
12K 1/2W	1	R16	.6"
33K 1/4W	3	R4,27,30	.5"
33K 1/2W	2	R19,20	.6"
Open	2	R34,35	

CAPACITORS

12p 100V	1	C18	.2"
47p 100V	1	C17	.2"
390p 100V	1	C5	.2"
10n 100V	2	C11,12	.4"
100n 50V	2	C6,7	.1" or .4"
100n 50V	1	C10	.4"
100n 100V	1	C15	.4"
10C50	2	C13,14	.15"
100C10	1	C19	.2"
100C50 or 47C50	2	C8,9	.2"

COIL

100uH	1	L1	.5"
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DIODES

15V 1W Zener	1	D1	.4"
15V 1W Zener	1	D2	.7"
1N4001	3	D3,4,5	Vertical (Bias)
1N4002	3	D6,7,9	.4"
1N4002	1	D8	.65"
1N4148	1	D10	.4"
1N4148	1	D11	.3"

TRANSISTORS

MPSA06	2	Q1,2	2N5200, 2N5089
MPSA56	2	Q3,4	2N5087
2N3906	2	Q5,11	
2N5680	1	Q6	MPSA92 with heatsink
2N5682	1	Q8	MPSA42 with heatsink
2N3904	2	Q7,9	2SC458
2N3904	1	Q10	2N4401
TIP112 Or 122	1	Q14	
TIP117 Or 127	1	Q15	
MJ15015	2	Q16,17	
MJ15016	2	Q18,19	
Short B to E	2	Q12,13	Omitted with Darlington drivers

HARDWARE

Tab	54	Keystone 1287	.054"
Fuse Clip	6	Keystone 3529/3514	.070
Socket	4	Keystone 4600	.100, .070, .218
Mica Washer	4	Keystone 4662	
RCA Jack	1	Keystone 572	.085, .187
6-20 X 5/8"	8	Sheet Metal Screw	
4-40 X 3/4"	2	Machine Screw	
4-40 Nut	2		
#4 Lockwasher	2	External Tooth	
Spacer	2	.3125" long with hole for #4 Screw clearance	
Printed Circuit	1	Custom	
Flange	1	1" X 2" X 1/8" Thick X 9" Long-Custom Drilled	
Fuse	3	AGC 5	
Grease		CDN Tire Red Synthetic	
Jumper	1	.35" (Resistor Lead)	

OFFSET RELAY OPTION

Resistors

OR	1	R60	.6"
5K6 $\frac{1}{2}$ W	1	R55	.5"
10K $\frac{1}{4}$ W	2	R56,57	.5"
30K $\frac{1}{4}$ W	1	R59	.5"
91-100K $\frac{1}{4}$ W	1	R58	.5"

Capacitors

22C50	1	C16	.2"
47C50NP	1	C20	.25" or 1.1"

Diodes

1N4148	4	D12,13,14,15	.4"
6.2V .4W Zener	1	D16	.4"
1N4002	1	D17	.4"

Transistors

2N3568	1	Q20	MPSA06
2N3645	1	Q21	MPSA56

Hardware

Tabs	4	Keystone 1287	
Relay Board	1	Custom	
Relay	2	Stock	
Relay Socket	2	Stock	

LIMITER OPTION

Resistors

1K2 $\frac{1}{4}$ W	1	R63	.4"
3K9 $\frac{1}{4}$ W	1	R64	.4"
6K8 $\frac{1}{4}$ W	1	R72	.4"
10K $\frac{1}{4}$ W	1	R70	.5"
10K Trimmer	1	R71	Vertical
30K $\frac{1}{4}$ W	1	R69	.5"
68K $\frac{1}{4}$ W	1	R67	.5"
120K $\frac{1}{4}$ W	1	R62	.5"
1M0 $\frac{1}{4}$ W	3	R65,66,68	.4"

Capacitors

220p 50V	1	C1	.2"
100n	1	C2	.4"
2.2C16	1	C3	.2"
4.7C16	1	C4	.4"

Transistors

2N3904	1	Q23	2N4401
2N4360	1	Q22	2N3820
I.C. TL071	1	I.C.1	