



**734/735**  
**COMPONENT/RGB TRANSLATORS**

(REV. 1)

**broadcast video systems corp.**

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## **APPLICATION NOTE**

### ***INTERFACING A BVS 734 TRANSCODER TO AN AVID NON-LINEAR EDITOR***

It has been brought to our attention that when a Broadcast Video Systems 734 RGB to R-Y, B-Y, Y transcoder is interfaced to an AVID non-linear editing system, a level mismatch may occur. The 734 is factory set to produce a Y signal with a set up value of 7.5 IRE and a peak white value of 100 IRE when the input RGB has no set up. As it is possible to adjust the AVID to put set up on the RGB, the output in this case will have a set up that is too high. To remedy this, turn pot R107 on the 734 fully clockwise (maximum 10 turns). This will remove the set up generated by the BVS unit and will cause the resultant Y to exhibit correct levels.

If the RGB and Sync Signals are being looped at the picture monitor and then fed to the transcoder, please ensure that all termination switches on the picture monitor are switched to the **OFF** position. All inputs are terminated internally in the transcoder.

## **INSTALLATION INSTRUCTIONS**

### ***TYPE 734 RGBS TO Y, R-Y, B-Y***

Connect Red, Green, Blue and Sync cables to the appropriate input connectors.

**NOTE:** The 734 is designed for a standard sync input level of 4 Vp-p and will operate down to a 3 Vp-p sync input. Should it be necessary to operate on less than 3 Vp-p sync it is necessary to disconnect R87 (75 resistor located along right hand edge of PC board next to C7 and VC3)

Connect Y, R-Y, B-Y outputs to destination.

This unit has been factory calibrated for a component system specified with order. Should it be necessary to recalibrate, refer to Calibration Instructions.

## **CALIBRATION INSTRUCTIONS**

### **TYPE 734 RGBS TO Y, R-Y, B-Y TRANSLATOR**

1. Check +7V and 7V power rails. Make adjustments if necessary with +7V and 7V adjustment pots.
2. Feed 75% saturated RGB color bars and sync to translator.
3. Monitor Y output.
4. Adjust sync level for 40 IRE units.
5. Adjust set-up level for 7.5 IRE units.
6. Adjust Y level for 1 Vp-p for 100% white bar or .835 Vp-p for 75% white bar.
7. Adjust Y DC offset for 0 VDC at blanking.  
NOTE: To remove pedestal, adjust set-up level for 0 IRE units and re-adjust Y-level for 1Vp-p.
8. Monitor B-Y output.
9. Adjust B gain and B-Y balance for 700 mVp-p (Betacam levels)
10. Adjust B-Y DC offset for 0 VDC at blanking.
11. Monitor R-Y.
12. Adjust R gain and R-Y balance for 700 mVp-p (Betacam levels)
13. Adjust R-Y DC offset for 0 VDC at blanking.  
NOTE: For Panasonic MII levels, install JP1 and JP2 jumpers and re-adjust B-Y and R-Y levels for 486 mVp-p (SMPTE levels require JP1 and JP2 as well but B-Y and R-Y levels are 525 mVp-p)
14. Feed multiburst (or sweep) signal into green input and adjust Y frequency response for flat response.
15. Feed multiburst (or sweep) signal into blue input and adjust B-Y frequency response for flat response.
16. Feed multiburst (or sweep) signal into red input and adjust R-Y frequency response for flat response.
17. If required, adjust horizontal phase for correct sync to picture timing (9.2s from leading edge of sync to start of picture).

## **ADDENDUM TO CALIBRATION INSTRUCTIONS**

### **TYPE 734 RGBS TO Y, R-Y, B-Y TRANSLATOR**

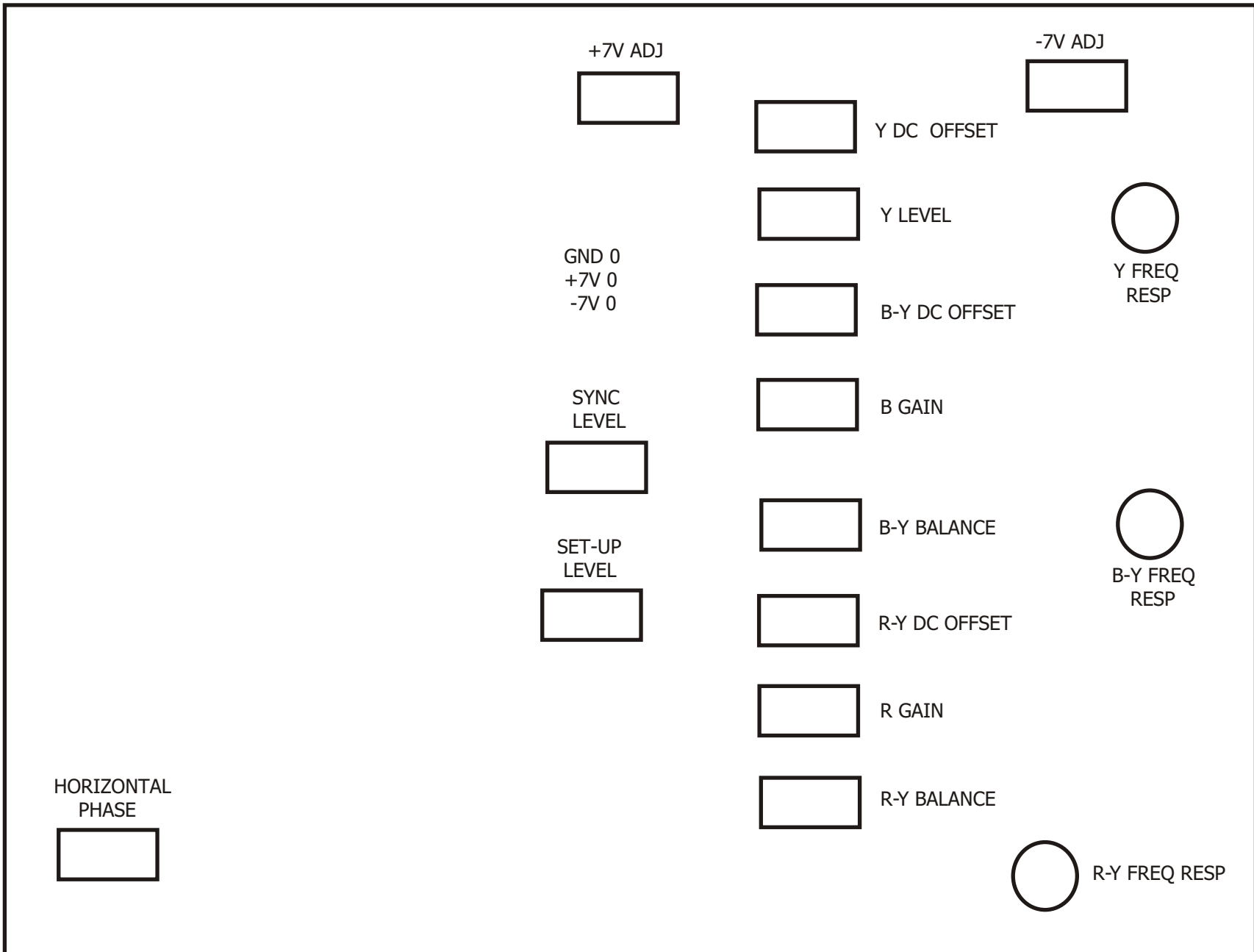
If sync is on red, green and blue inputs, recalibration of the Y output is required:

- 1) adjust R115 (sync level) for 40 IRE (300mv) of sync on Y output.
- 2) adjust R14 (Y DC offset) for 0 VDC at blanking on Y output.

Sync and blanking are regenerated by U8. Should the P.L.L. (phase lock loop) require adjustment, proceed as follows:

- 1) scope pin 22 of U8 and adjust VC4 for mid-point of positive and negative excursions.

# 734 TRANSLATOR ADJUSTMENTS



## **CALIBRATION INSTRUCTIONS**

### **TYPE 735 Y, R-Y, B-Y TO RGBS TRANSLATOR**

- 1) Feed Y, R-Y, B-Y color bars to 735 card.
- 2) While monitoring U6/6 adjust R71 for zero set-up.
- 3) Adjust R46 for correct red waveform on output.
- 4) Adjust R66 for correct blue waveform on output.
- 5) Adjust R47 and R33 for correct green waveform on output.  
(**NOTE:** R47 is interactive with R71. Re-check step #3 before continuing with set-up.)
- 6) Adjust R25 for correct pk to pk level on red output.
- 7) Adjust R21 for 0 VDC at blanking on red output.
- 8) Adjust R61 for correct pk to pk level on blue output.
- 9) Adjust R75 for 0 VDC at blanking on blue output.
- 10) Adjust R40 for correct pk to pk level on green output.
- 11) Adjust R36 for 0 VDC at blanking on green output.  
(**NOTE:** R36 is interactive with R71. Re-check step#3 before continuing with set-up.)
- 12) Monitor sync output.
- 13) Adjust R81 for 4V pk to pk sync level at output.
- 14) Using a dual trace oscilloscope, display sync and green outputs and adjust R13 for 9.2 micro secs from leading edge of sync to beginning of picture on green output (10.5 micro secs for PAL).  
**NOTE:** If sync is required on RGB, re-position jumpers (J1-2-3) as required, adjust R78 for 40 IRE sync on RGB outputs. Level controls (R40-green, R25-red, R61-blue) will require re-adjusting.
- 15) Feed multiburst into Y input, terminate R-Y and B-Y input connectors.
- 16) Adjust C21 for flat response at red output.
- 17) Adjust C30 for flat response at green output.
- 18) Adjust C37 for flat response at blue output.

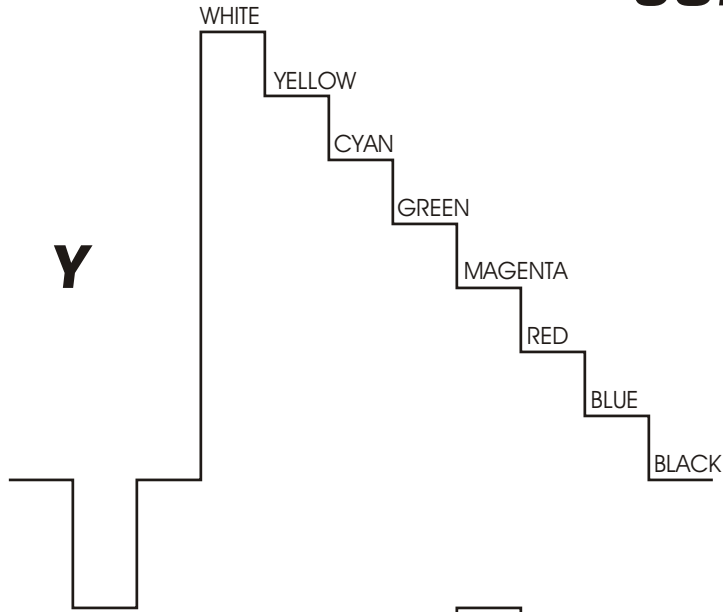
## 735A COMPONENT AMPLIFIER BOARD

This board plugs into the Fr730 frame and allows additional gain on the **R-Y, B-Y, Y** signals. It is factory set at unity and each channel may be individually adjusted for an additional 3db of level.

The inputs are labelled **Y, R-Y, and B-Y** on the rear panel. The **Y** output appears at the **G** output connector, the **R-Y** at the **R** and the **B-Y** at the **B** connector. The output level controls are labelled **R, G** and **B** and correspond with the output connectors.

The frequency response has been set and should not be adjusted without the use of a sweep generator.

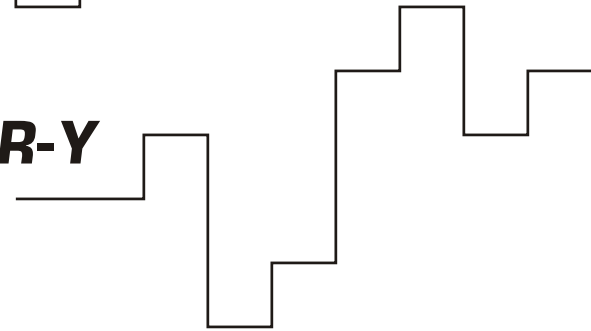
# COMPONENT LEVELS



**Y**

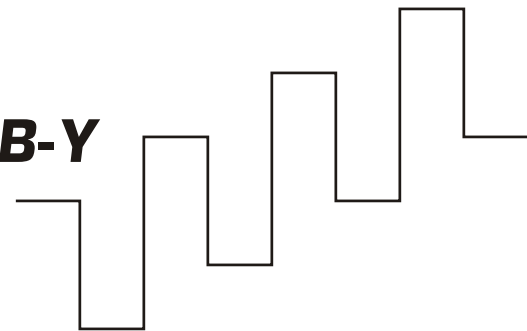
BARS	<b>BETACAM</b>		<b>MII</b>		<b>SMPTE/EBU</b>
	100%	75%	100%	75%	100%
PK. TO PK.	1.000V	.835V	1.000V	.848V	1.000V
WHITE	.714	.549	.700	.548	.700
SETUP	.054	.054	.053	.053	.000
SYNC	.286	.286	.300	.300	.300
BLANKING 0V DC					

**R-Y**

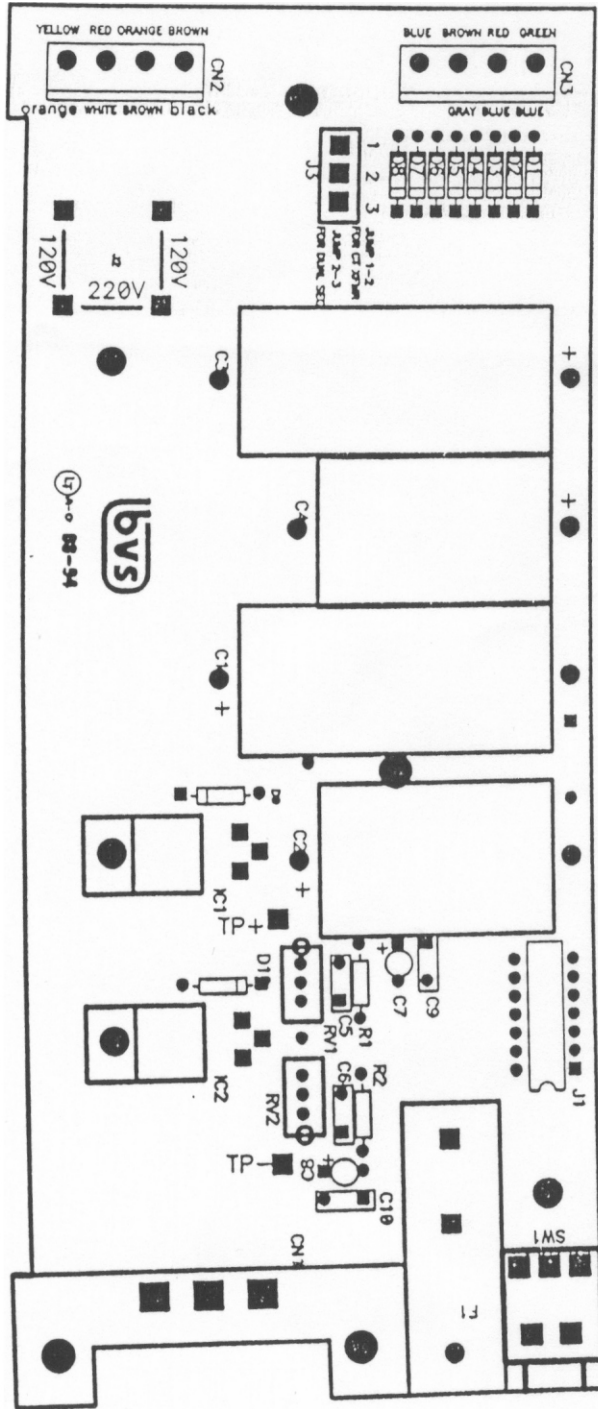


PK. TO PK.	.934	.700	.648	.486	.700
POS. EXCURS'N.	.467	.350	.324	.243	.350
NEG. EXCURS'N.	.467	.350	.324	.243	.350
BLANKING 0V DC					

**B-Y**



PK. TO PK.	.934	.700	.648	.486	.700
POS. EXCURS'N.	.467	.350	.324	.243	.350
NEG. EXCURS'N.	.467	.350	.324	.243	.350
BLANKING 0V DC					



PS-1A  
COMPONENT  
LAYOUT

## 734 TRANSLATOR CARD, PARTS LIST

1N4148	5	D1, D2, D3, D4, D5
100	12	R1, R7, R27, R33, R47, R56, R62, R78, R101, R105, R109, R113
240	2	R118, R120
270	2	R52, R81
330	1	R89
390	2	R48, R75
680	6	R5, R22, R31, R61, R106, R114
750	4	R49, R50, R76, R77
910	1	R46
1K	2	R90, R94
1K2	1	R80
2K	1	R21
2K2	12	R16, R17, R18, R19, R43, R44, R45, R51, R72, R73, R74, R79
2K7	1	R96
3K3	6	R6, R20, R32, R60, R104, R112
4K7	6	R4, R30, R59, R97, R102, R110
5K6	1	R151
10K	1	R88
15K	2	R108, R116
18K	1	R93
22K	1	R150
47K	5	R3, R29, R58, R103, R111
68K	1	R100
100K	2	R92, R99
270K	1	R91
1M0	1	R98
75 1%	7	R2, R26, R28, R53, R57, R82, R87
1N4004	2	D6, D7
82uH	1	L1
1K21 .5%	3	R10, R36, R65
2K375 .5%	3	R8, R34, R63
6K228 .5%	3	R12, R38, R67
8 PIN	3	U1, U2, U4
14 PIN	2	U6, U7
28 PIN	1	U8
LM317	1	VR1
LM337	1	RV1
27pF	3	C13, C70, C71
39pF	1	C12
68pF	1	C56

82pF	1	C14
100pF	4	C9, C15, C50, C51
1n0F	1	C16
3n9F	1	C11
510pF	1	C10
0.1uF/63v	25	C1, C2, C3, C4, C5, C6, C19, C20, C22, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C61, C62
VK-20009-3B (CHOKE)	2	L2, L3
1uF/35v	2	C34, C35
10uF/35v	3	C17, C18, C21
2N4124	6	Q1, Q6, Q8, Q10, Q11, Q13
2N4126	5	Q2, Q7, Q9, Q12, Q14
MV104	1	MV1
2-20pF	1	VC4
5-60pF	3	VC1, VC2, VC3
1K POT	5	R14, R40, R69, R107, R115
2K POT	1	R117
5K POT	1	R119
50K POT	1	R95
200 POT	4	R41, R42, R70, R71
500 POT	1	R15
100uF/10v	4	C57, C58, C59, C60
1u0-M/63v	1	C8
100uF/25v	1	C7
103-40031 (MALE)	1	P1
EL2020 OR CLC430AJP	3	U1, U2, U4
4069	1	U6
74HC74	1	U7
HD44007	1	U8

## 735 TRANSCODER CARD

1N4148	5	CR1, CR2, CR3, CR6 + A 220 RESISTOR, CR7
75	1	R82
150	1	R54
240	2	R7, R9
470	7	R27, R29, R44, R50, R65, R68, R74
680	1	R83
750	11	R23, R30, R31, R32, R34, R38, R39, R45, R59, R64, R77
1K	8	R12, R43, R48, R49, R52, R69, R79, R80
1K1	5	R6, R8, R24, R28, R60
1K2	2	R20, R57
1K5	2	R35, R53
2K	1	R73
2K7	1	R14
3K9	1	R67
4K7	3	R5, R37, R76
6K8	2	R22, R58
10K	3	R16, R72, R84
18K	1	R11
68k	1	R3
100K	3	R2, R4, R17
270K	1	R1
1M0	1	R15
75 1%	7	R26, R41, R42, R51, R62, R63, R70
715 1%	1	R18, R19, R55, R56
1N4004	2	CR4, CR5
8 PIN	5	U4, U6, U7, U9, U11
14 PIN	5	U1, U2, U5, U8, U10
28 PIN	1	U3
12pF	3	C24, C33, C40
27pF	1	C18
39pF	1	C15
82pF	1	C17
100pF	2	C8, C9
1n0F	1	C2
3n9F	1	C14
10nF	1	C4
LM317	1	VR1
LM337	1	VR2
VK-2000-3B (CHOKE)	2	L2, L3

0.1uF/63v	16	C13, C20, C22, C23, C25, C27, C28, C29, C31, C32, C36, C38, C39, C42, C43, C44
0.1uF/50v	1	C41
3 PIN HEADER	3	W1, W2, W3
1uF/35v	4	C3, C6, C10, C11
10uF/35v	3	C5, C26, C35
22uF/16v	2	C1, C34
1N4124	2	Q1, Q2
1N4126	1	Q3
MV104	1	VC1
510pF	1	C16
2-22pF	1	C19
5-60pF	3	C21, C30, C37
1K POT	2	R36, R47
2K POT	1	R71
5K POT	2	R78, R81
50K POT	1	R13
500 POT	8	R21, R25, R33, R40, R46, R61, R66, R75
10uF/50v	2	C7, C12
103-40031 (MALE)	1	P1
4069	1	U1
74HC74	1	U2
HD44007	1	U3
EL2020 OR CLC430AJP	5	U4, U6, U7, U9, U11
592	3	U5, U8, U10

- \*\*NOTE:
- CUT TRACE BY U6\*\*
  - ADD A 330 RESISTOR FROM R32 TO GROUND\*\*
  - ADD A GREEN WIRE FROM -7 TO R52\*\*
  - ADD A 82uH FROM L1 TO C9\*\*

## PS-1 POWER SUPPLY, PARTS LIST

240	2	R1, R2
1N4004	10	D1, D2, D3, D4, D5, D6, D7, D8, D9, D10
14 PIN IC	1	J1
0.1uF/63v	4	C5, C6, C9, C10
PS-1 POWER SWITCH	1	SW1
10uF/35v	2	C7, C8
5K POT	2	RV1, RV2
19782 FUSE HOLDER	1	F1
2200uF/35v	2	C2, C4
3300uF/35v	2	C1, C3
EAC-333 RECEPTACLE	1	POWER PLUG
HEAT SINK	2	IC1, IC2
LM317	1	IC1
LM337	1	IC2